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ABSTRACT

This process manual explains the procedures followed by a project that provided training for employees of manufacturing industries. It also focuses on the project's attainment of two other objectives: (1) helping industry in the target area become more competitive with foreign rivals; and (2) building a network between industry and education. A project summary discusses the need to provide training or skill upgrading in high technology areas of study, such as word processing, fluid power, computer-controlled machine tools, and computer-aided drafting and design. The manual describes the following activities: establishment of an advisory committee; management plan development; market survey to determine training needs; design of advertising media; establishment of training programs and facilities; development of linkages with industry; adult student registration; design of program agendas; development of outreach systems and information networks; and writing of the project final report. Project materials are provided, including the market survey, memorandum of agreement between school providing training and the project operator, sample training programs and curriculum outlines, registration forms, Lotus recordkeeping system, project correspondence, and the PC Write Word Processing Guide and Electronic Mail User's Guide. (YLB)

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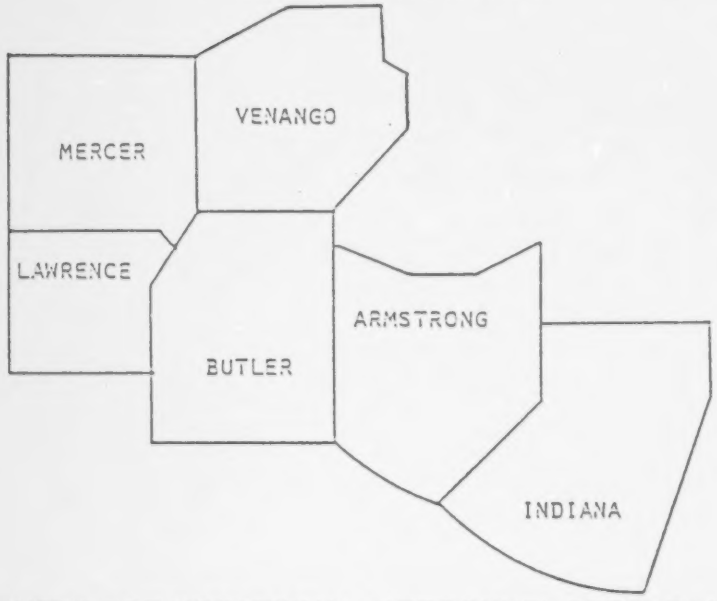
ED328697

# NORTHWESTERN PENNSYLVANIA COOPERATIVE DEMONSTRATION PROJECT (HIGH TECHNOLOGY)

## PROCESS MANUAL




CENTER FOR VOCATIONAL PERSONNEL PREPARATION
INDIANA UNIVERSITY OF PENNSYLVANIA
1989-1990

Project Co-Directors:
Dr. Michael Spewock
Mr. Thomas O'Brien

Funded by:
Office of Vocational and Adult Education
United States Department of Education
Project Number: V199A90089

CE056829

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
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PROCESS MANUAL

Northwestern Pennsylvania
Cooperative Demonstration Project
for
Employees of
Manufacturing Industries

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## 1. ABSTRACT AND PROJECT SUMMARY

The Northwestern Pennsylvania Cooperative Demonstration Project was developed at the Center for Vocational Personnel Preparation at Indiana University of Pennsylvania, Indiana, Pa. The purpose of the project was to provide training programs for employees of manufacturing industries who needed education or skill upgrading in one or more of the following areas of study:

- Industrial Electricity and Elec..onics
- Computer-controlled Machine Tools
- Computer-aided Drafting and Design
- Quality Control and Statistical Process Control
- Word Processing
- D-base, MS-DOS, and Computer Spreadsheet Development
- Fluid Power
- Algebra and Trigonometry

The project operated from January 1989 through August 1990 and was directed by Dr. Michael Spewock and Mr. Thomas O'Brien. People who received training were employed by manufacturing industries located in the following six northwestern Pennsylvania counties: Armstrong, Butler, Indiana, Lawrence, Mercer and Venango.

Project planners recognized a need to introduce high-tech training and related services to industries in this region. The area has experienced a steady economic decline since 1975 when managers of steel-making plants in Pittsburgh and Johnstown closed the doors to their factories. The resulting domino effect caused worker layoffs and plant closings in western Pennsylvania coal mines, in "small job" machine shops, and in other industries that depend upon coal and steel production for raw materials.

Not long after western Pennsylvania coal and steel industries closed, the management of Volkswagen America decided to stop production of its popular "Rabbit" economy car in the New Stanton, Pa., automobile assembly plant. This decision caused a shut-down of the factory and forced more than 5,000 western Pennsylvania men and women out of work. The repercussion from lost jobs caused enormous decreases in revenues to area schools and reduced income to local businesses and service industries.

The departure of companies like Volkswagen and Bethlehem steel was the result of competition from overseas manufacturers who have the ability to produce steel and "value-added" steel products at a lower price than can many factories in the United States. The loss of these industries proved to be devastating to the people in western Pennsylvania. Some former steel mill and coal mine workers who lost jobs were able to find employment in service industries near their homes. These included fast-food restaurants, convenience stores, and gasoline stations. Unfortunately, these time-consuming, low-paying jobs prevented workers from seeking educational

programs that provided the skills they needed to return to new jobs in "high-tech" industries that have slowly begun to emerge in Johnstown and the Allegheny river valley surrounding the city of Pittsburgh.

The three objectives of this project were (a) to help industry in the six-county target area become more competitive with its foreign rivals. Project directors reasoned that this could be done if they would demonstrate cost-effective methods industry could use to train workers. The directors also thought that part of the answer to industry's training needs lay in the project's second objective, (b) to establish "linkages" between factory personnel and schools such as proprietary training institutions, Pennsylvania's county vocational-technical schools, local community colleges, and "Adult Skill Centers.". Federal grant funds were used by Indiana University of Pennsylvania to establish articulation agreements among these agencies, then demonstrate how workers would be taught using actual training programs as models for future training applications. The final objective of the project (c) was to develop a "process manual" that would be used as a guide by other agencies that wanted to replicate the project in Pennsylvania and other parts of the United States.

The directors of the project worked with representatives from industry, vocational-technical schools, community colleges, and private training schools to establish educational programs. Programs were offered in the form of one-night-per-week evening classes for 6, 8, 10, 12, or 16 weeks; two-day seminars, and 5-day, 40-hour intensive training sessions. In all classes, curricula focused on combining theory with hands-on training on computers, word processors, high-tech machinery, higher level mathematics (algebra, geometry, trigonometry), electronics hardware, and/or peripheral equipment.

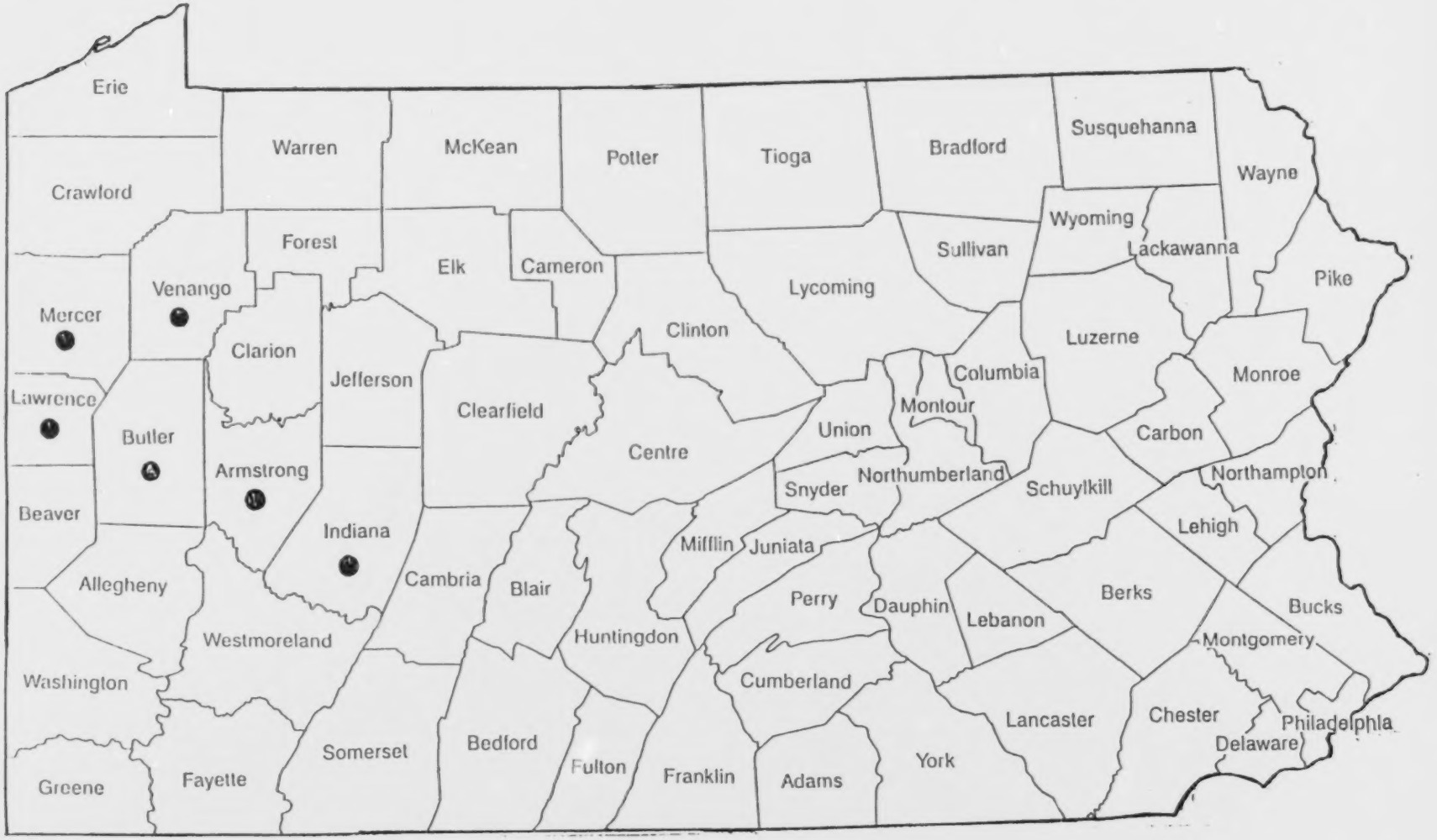
At the end of each training program, participants were asked to evaluate their educational experiences. Paper-and-pencil survey-type questionnaires were used for evaluation. Personnel directors and factory supervisors were also asked to evaluate the effectiveness of training. Once again, questionnaires were used. Supervisors were asked to observe employees practicing their new skills or, if that was not possible, to attempt to predict an employee's potential to succeed in the workplace as a result of training. Supervisors then reported their observations on evaluation instruments.

After the project directors arranged for the implementation of employee training programs, they focused their efforts on establishing demonstration sites. This activity was designed to showcase new technology for manufacturers who planned to purchase new equipment. Demonstration sites were scheduled to operate in April and June of 1990 in Titusville and Erie, Pennsylvania. Activities at the demonstration sites permitted factory owners to observe hardware and software in operation. By observing such equipment in action, manufacturers were able to make wise choices about its potential for helping their businesses before they invested time, capital, and manpower in installation and operation.

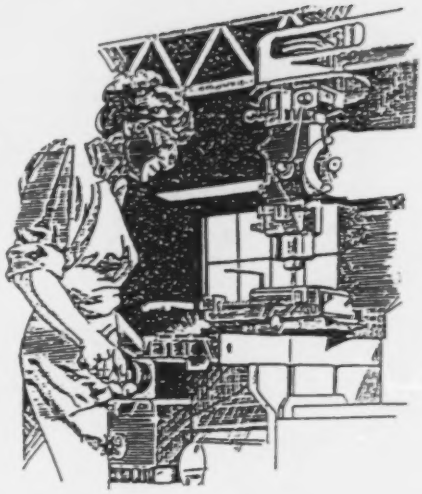
Results of the cooperative demonstration training project were positive. More than 500 workers, office personnel and plant supervisors in western Pennsylania manufacturing industries participated in training and demonstration site programs. Most importany, however, the project built a network between industry and education that will continue to function after federal monetary support has ended.

SERVICE AREA MAP

● Denotes counties served by the Cooperative Demonstration Project



## INTRODUCTION



In 1970, the demand for steel in the world market kept the blast furnaces in Pittsburgh's steel industry operating 24 hours a day. At that time, steel production was king of all industries in the "three rivers" city. It fueled the economies of many small towns along the Ohio, Allegheny and Monongahela rivers and gave rise to dozens of small machine shops; motor, pump, and mechanical repair businesses; and hundreds of material supply houses and service organizations. For generations, immigrants from all over the world brought their families to western Pennsylvania to earn a living and pursue the good life promised to them by factory owners who were looking for strong, dependable laborers.

Consumers from many countries considered Pittsburgh's industrial capacity to be unequaled in the world, and people who lived in Pittsburgh thought that their powerful steel industry would never die. Unfortunately, however, these people were wrong. By 1985, the steel industry in western Pennsylvania was nearly gone--its markets lost to cheaper production methods and "specialty" steel producers in Brazil, Taiwan and other foreign countries that invested heavily in high-tech equipment and educational programs for employees. Nearly all the steel workers in Pittsburgh lost their jobs.

The plight of industrial workers in Pittsburgh is not a problem that is unique to western Pennsylvania. Workers in factories all over America have often been caught in the turbulence of the changes that have occurred in industry. During the last 200 years, many factories have been established, experienced several years of success and growth, then succumbed to entrepreneurs with newer, more modern methods for producing the same products. In America's early days, the skilled craftsmen who made products by hand were quickly replaced by semiskilled laborers working in factories on high-production machinery. Not long afterward, unskilled workers on assembly lines replaced the semiskilled factory employee. Today, automated, computer-controlled robots have enabled manufacturers to eliminate nearly all manual labor while, at the same time, producing more and more consumer goods. In many factories, a mere 10 to 12 men and women with high-tech skills monitor computers and robots that perform the work of dozens of humans.

Since colonial times, workers in America have experienced difficulty when factory owners cut production, replaced people with power machinery, or reduced the labor force in an effort to maintain a robust profit margin. People who earned their living in manufacturing industries became accustomed to economic "peaks and valleys" which

fostered both good and bad times for them and their families. Bureaus of employment security became common institutions in every town, and they helped unemployed men and women survive the bad times by providing people with a job search service and a modest monetary safety net. In spite of such good intentions from social agencies, though, unemployed men and women realized they really were on their own while looking for new jobs. In the meantime, however, the relentless restructuring of factories, equipment, management, personnel, products, and processes went on unabated. No one paid much attention to the long lines of people waiting for assistance at the local employment office.

As the twenty-first century approaches, little has changed for people who work in manufacturing industries. Workers must depend upon a healthy industrial economy for their financial security, and they must still be prepared to confront the inevitable changes that constantly threaten their future. Employees who accept the inevitability of change can insure their economic and job security by attempting to learn more than one craft or trade, by diversifying their skills, and/or updating the knowledge they need to remain employed in their present jobs. The managers of the Northwestern Pennsylvania Cooperative Demonstration Training Project for Employees of Manufacturing Industries have developed this process manual to explain how this may be accomplished.

## 3. ESTABLISHING AN ADVISORY COMMITTEE

Programs that operate at the Center for Vocational Personnel Preparation at Indiana University of Pennsylvania are guided by advisory boards, strategic planning committees, or advisory committees, depending upon the activity being initiated. These advisory groups have proven their worth in a number of ways: (a) The advisors who comprise these committees generate good ideas which are often implemented by program directors, (b) Advisors from business, industry, education, and the local community are invited to help with the planning and operation of a program that is supported by public funds thereby preventing future criticism from members of these groups, and (c) Local advisors are valuable resource persons who help university program directors trying to build a "network" with other professionals who live and work in a specific geographic area in Pennsylvania being served by a university program.

The Cooperative Demonstration Project was guided by an advisory committee made up of BIE (business, industry, and education) representatives. Most of these people were identified by vocational school directors in Armstrong, Butler, Indiana, Mercer, Lawrence and Venango counties. The majority of representatives had a history of service to the vocational schools via general school advisory committees, subject area "craft committees," and community assistance projects. Additional representatives were identified by the Southwestern Pennsylvania Regional Industrial Resource Centers (SPIRC) team which was based in Duquesne, Pennsylvania, and had linkages to Indiana University of Pennsylvania's Center for Applied Communications and Information Systems (CACIS) in Armstrong county.

Invitations to participate in the cooperative demonstration project were mailed to the BIE representatives. The names of those who volunteered to participate as advisors for the project in the six-county service area are shown in Figure 1.

The initial meeting of the strategic planning committee was held two months before the application for the cooperative demonstration project was submitted to the U. S. Office of Education for review. Issues discussed at this first meeting focused on the perceived need for the program, opportunities for partnerships between local area vocational-technical schools, private trade schools, and "adult" skills centers (funded in Pennsylvania by the Department of Labor), and western Pennsylvania community colleges. Partnerships were formed between the Center for Vocational Personnel Preparation and the following groups at this meeting: Center for Applied Communications and Information Systems (CACIS) in Kittanning, Pennsylvania (Armstrong County); Southwestern Pennsylvania Industrial Resource Center (SPIRC) in Duquesne (and re-located later to Homestead) Pennsylvania (Allegheny County); and area vocational-technical schools in Armstrong, Butler, Indiana, Lawrence Mercer, and Venango counties. Later, during the project's operation, additional partnerships were formed between the vocational center at IUP and Butler County Community College, and PowerSafety International, a proprietary school in Homer City, (Indiana county) Pennsylvania.

These partnerships proved to be valuable for (a) establishing linkages with industry; (b) arranging meetings with leaders in chambers of commerce and economic development organizations; (c) identifying experts in specific subject matter fields like electronics, quality control, computer operated design and manufacturing equipment; (d) locating classroom space, laboratory facilities, and demonstration sites; and (e) targeting industries in the local community that would be interested in upgrading their employees' work skills. Meetings with advisory committee members were held in a location that was centrally located in the six-county service area, not on the campus of Indiana University of Pennsylvania. Times and dates varied depending upon availability of advisors. A two-to-four hour block of time was usually scheduled which proved to be adequate for addressing planned agenda topics.

Each partner organization added its own special contribution to the development and operation of the cooperative demonstration project. Leaders of the SPIRC team, for example, had strong ties to Pittsburgh's industrial power base and the state governor's office. Ms. Martha Lester and members of the SPIRC team were helpful in finding expertise in Pittsburgh's manufacturing industries. This assisted Mr. O'Brien and Dr. Spewock in identifying teachers and instructional materials for the areas of quality control and statistical process control.

The Center for Applied Communications and Information Systems in Kittanning, Pennsylvania, contributed a model for computer networking of industries. Its service to businesses along the Allegheny-Kiski river valley included workshops and consulting services for business and industry owners who wished to review, install and program computer hardware and software in their offices. The center's evening classes, workshops, and consulting services provided an effective design for Mr. O'Brien and Dr. Spewock to use as they worked with personnel managers trying to schedule classes for employees who needed updating in high-tech skills. Dr. Frank Como, Mr. Damian Yenzi, and Ms. Sherry Brown helped in these efforts. Mr. Paul Klinger also contributed to the effort. Mr. Klinger, former manager of an economic development group known as "Partners for Armstrong County's Economy" (PACE), acted as liaison between CACIS personnel, IUP project staff, and members of the PACE organization.

Special contributions made by vocational school directors from the six county vo-tech schools participating in the project, and managers of other training institutions like the Harry T. Kerr Skills Center in Venango county and PowerSafety International in Indiana county focused on (a) instructional expertise, (b) classroom and laboratory space, and (c) linkages with local industry via each school's general advisory committee. Directors and these training institutions provided names, addresses and telephone numbers of key contact people in business and industry and offered the use of their facilities at a nominal cost. This contribution prevented Mr. O'Brien and Dr. Spewock from spending many hours of time building this data base. Often, a training laboratory, instructor and requisite equipment could be scheduled for a customized high-tech training program with only a few weeks' preparation time.

Partnerships like these, and the advisors they provided to the IUP management team were the foundation of the cooperative demonstration project's success. When Mr. O'Brien and Dr. Spewock applied to the U. S. Office of Education for funds to carry out their project, they knew that these support groups already were in existence and realized that high-tech training
programs for industry could not be successfully established without them. To attempt such an effort without the support of economic development organizations, training institutions, and the help of the industrial community would probably result in failure.

Table 1. Advisory Committee Members

Ms. Martha Lester, Director
Southwestern Pennsylvania
Industrial Resource Center
Duquesne, PA

Mr. Robert Bickerstaff, Director
Clarion County AVTS
P.O. Box 1976
Shippenville, Pa.

Mr. Robert Brown, Director
Mercer County AVTS
P.O. Box 152, Rt. #58
Mercer, PA

Mr. William Clark, Director
Venango County AVTS
One Vo-Tech Drive
Oil City, PA 16301

Dr. Frank Como, Director
Center for Applied Communications and Information Systems
2 Butler Road
Kittanning, Pa.

Barry Denk, Regional Director
CENTECH
P.O. Box 5667
Johnstown, Pa.

Mr. Gene Malinowski, Director
Manufacturing Services
Bishop Boyle Center
120 E. 9th Street
Homestead, PA

Mr. William Rupell
Indiana County AVTS
R.D. #3, Box 6A
Hamill Road
Indiana, PA

Mr. Arthur Zarone, Director
Butler County AVTS
161 New Castle Road
Butler, Pa.

Mr. Ronald Lester, Vice President
Eljer Manufacturing Co., Inc.
Ford City, Pa.

Mr. Rodney Tarr
Educational Director
Joy Manufacturing Co., Inc.
Franklin, Pa.

Mr. Mark Brosnahan
FRB Machine Company
College Road Extension
Emlenton, Pa.

Mr. Bob DiMarcki, Vice Pres.
Ralph Hiller Hydraulics Co.
Killarney Drive
Pittsburgh, Pa.

Mr. Sam Heckel, Director of Employee Relations
Season-All Inc.
Indiana, Pa.

## 4. DEVELOPING A MANAGEMENT PLAN

### Personnel

After linkages with advisors and partner organizations had been established, the project's co-directors turned their attention to implementing their management plan. A search was initiated for a field-based project coordinator. This person was assigned to manage all training programs in the six-county area and supervise field resource personnel" (FRP). The latter included: Ms. Jane Sylves, Ms. Marlene Dolecki, Mrs. Sandra Durbin, and Mr. Harold Dunn. These people were not hired specifically to work on the cooperative demonstration project. They were veteran university faculty members already employed by Mr. O'Brien to serve vocational educators who were earning teacher certification in western Pennsylvania. Members of the FRP team are field-based and live in or near the six-county area served by the cooperative demonstration program. Thus, they became a very convenient local management force. One and sometimes two FRP's were assigned to each county (see Figure 2). When an industry in a county requested a training program, the FRP could relay the information back to the field-based project coordinator and/or Mr. O'Brien and Dr. Spewock, and arrangements were made to link the industry with a vo-tech school, community college, or proprietary school to provide instruction to selected employees. Field resource persons were not paid an additional sum of money to work on the cooperative demonstration project. They assumed these extra duties as part of their teaching load as their class size would permit each semester. Field resource personnel reported directly to the field-based project coordinator or to Dr. Spewock. Shortly after the project began, the person who was selected to act as field-based project coordinator chose to accept another job with a Pittsburgh engineering firm. Since no other candidates could be found to assume his duties, Dr. Spewock served as project coordinator for the duration of the project.

### Fiscal Management

Expenditures for operating the cooperative demonstration project fell into several categories: (a) salaries and benefits, (b) teacher wages, (c) books and instructional supplies, (d) rental of classroom and laboratory space and equipment, (e) travel in the service area, and (f) communications.

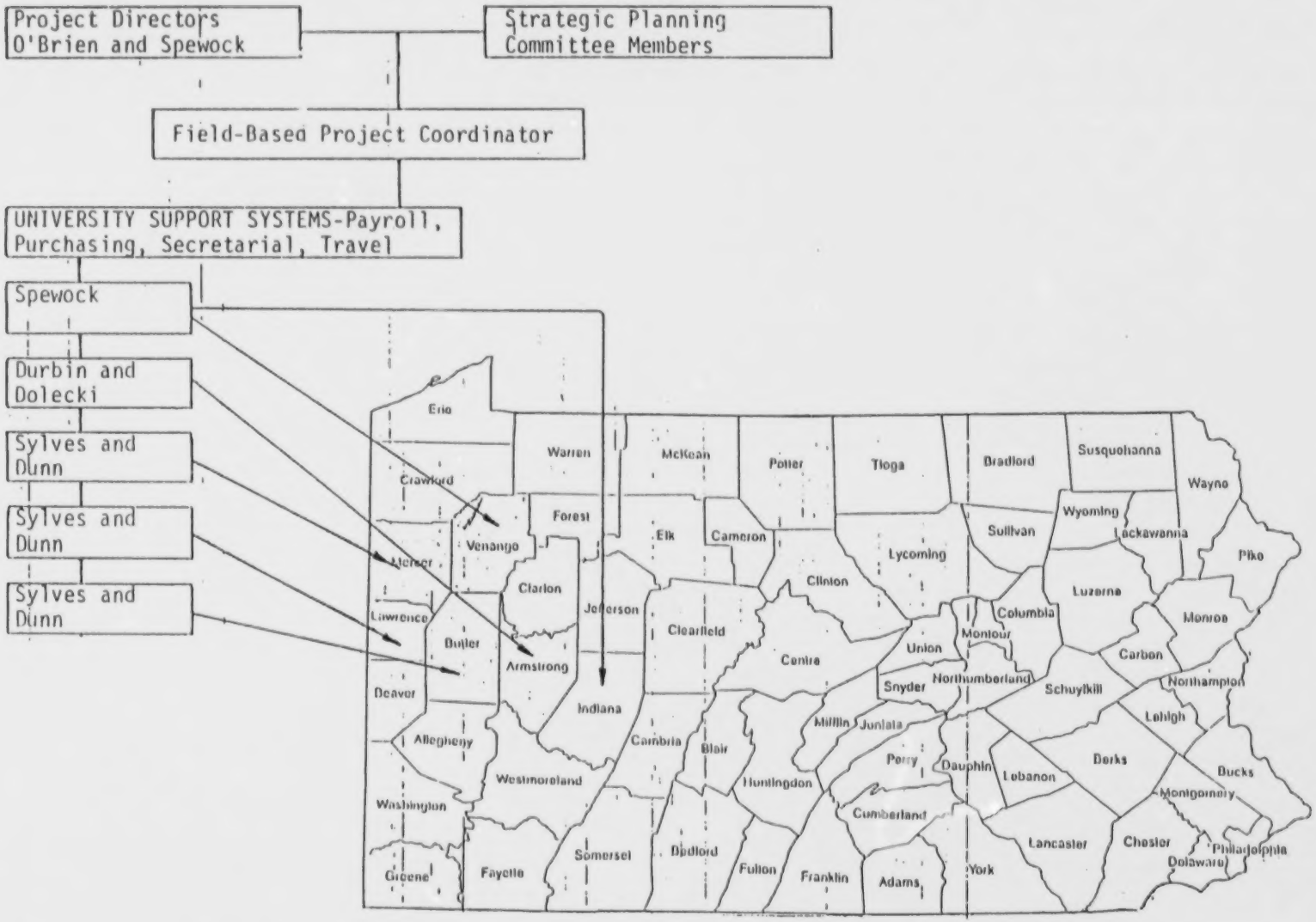
Mr. O'Brien and Dr. Spewock were responsible for monitoring these costs. They were assisted by Ms. Tina Brocious, budget manager at the Center for Vocational Personnel Preparation at IUP. Contracts for services were initiated by Dr. Spewock or Mr. O'Brien when a request for training was made by one of the field resource persons. Each contract was forwarded to Ms. Brocious for review then sent to Mrs. Barbara Cerovich, contact person at IUP's purchasing department. Mrs. Cerovich asked for a description of the negotiated training agreement, costs, instructors, class size, and course outline. This information was placed on a departmental purchase request and processed for payment. When the negotiated amount exceeded $5,000, the contract was mailed to three bidders. The bidder who received the award would render the service. Payment was made upon completion of services and receipt of invoice by the IUP purchasing

office. Records were kept by the purchasing office, by Ms. Brocious and Dr. Spewock. A computer program was used as a record-keeping tool.

The management team of O'Brien, Spewock, Brocious, Durbin, Dolecki, Sylves, and Dunn used Friday of each week to meet as necessary and review accomplishments and problems associated with the project's training programs, purchase order requests, etc. Meetings with members of the purchasing office were held as needed during the week.

Figure 1. Northwestern Pennsylvania Cooperative Demonstration Project

MANAGEMENT PLAN



Managers in Partner Organizations

During the course of the cooperative demonstration project, IUP's management team was assisted in each school by the following school managers who helped to coordinate training programs at their respective sites.

Butler County Community College
Dr. Joan Berry, Director
Mr. Dan Mitchell, I/E coordinator

California Univ. of Pennsylvania
Dr. Nevin Andre, Chairperson
Dr. Jay Helsel, Professor

Clarion County
Area Vo-tech school
Mr. Robert Bickerstaff, director

Harry T. Kerr Skills Center
Mr. Bruce Peterson, Director

Indiana County AVTS
Mr. John Jahoda, Supervisor
Mrs. Mary Beth Sweeney, Adult Education
Coordinator

Johnstown Area Vo-tech school
Mr. Tony Crimarcki, Adult Education Director
Mr. Leonard Shurin, Adult Education Program Coordinator

Lawrence County Area Vo-tech school
Mary Jean Tuminella, Adult Education Coordinator

PowerSafetyInternational
Mr. Mark Denchik, Manager

Venango County Area Vo-tech school
Mr. Bill Clark, Director
Mr. Charles Grace, Supervisor

## 5. MARKET SURVEY

Soon after funding was received by Indiana University of Pennsylvania to operate the project, a survey instrument was designed to determine the training needs of manufacturers in western Pennsylvania. Mr. O'Brien and Dr. Spewock met with Ms. Martha Lester and Ms. Elaine Wolf from SPIRC, and Dr. Frank Como from CACIS to draft a letter to manufacturers and compile a list of survey questions. The team decided that the questionnaire should include the following items:

- o demographic information
- o type of business
- o number of employees in organizations
- o high-tech areas needing training programs
- o company training methods
- o employee training needs
- o need for basic skill upgrading
- o times and dates of training
- o need for demonstration sites for exploring other topics

The completed letter and survey instrument (please refer to examples in this section) were mailed to 4,000 manufacturers in the following 13 counties being served by SPIRC, CACIS, and IUP's cooperative demonstration training project: Allegheny, Armstrong, Beaver, Butler, Cambria, Fayette, Greene, Indiana, Lawrence, Mercer, Venango, Washington, and Westmoreland.

Mr. Robert J. Clayton of Pittsburgh-based Dun's Marketing Services provided mailing labels for contacting 4,000 manufacturers. Mr. Clayton identified eligible manufacturers using the "Standard Industrial Classification" or SIC system. This system was developed by the federal government to facilitate cataloging and categorizing companies by their main product, service or activity. The basic coding pattern of the SIC system includes "manufacturing" as one of 11 major divisions. Manufacturing companies are grouped using numbers 20-39 as SIC "codes." used by Dun's Marketing Service to select the 4,000 manufacturers in western Pennsylvania who would receive IUP's survey instrument. The SIC system is outlined in greater detail in the Standard Industrial Classification Manual, 1972, issued by the federal government's Office of Management and Budget.

Once mailing labels were received, the secretarial staff at the Center for Vocational Personnel Preparation assembled 4,000 survey instrument packets and mailed them to manufacturers in 13 counties. Each packet contained a cover letter, a survey instrument, and a postage-paid, addressed, return envelope. Each packet also contained a complimentary one-cup envelope of Sanka decaffeinated coffee, powdered non-dairy creamer, sugar and stirring stick. This "favor" was included in the survey packet as a small incentive to encourage survey recipients to respond promptly to the survey instrument.

Center for Applied Communications and Information Systems

CACIS

Armstrong Campus
Indiana University
of Pennsylvania

2 Butler Road
Kittanning, PA 16201
(412) 545-9664

Southwestern Pennsylvania Industrial Resource Centers

SPIRC

One Library Place
Duquesne, PA 15110

(412) 469-3530
(800) 444-2504
FAX: (412) 469-3539

April, 1989

Dear Manufacturer:

The Southwestern Pennsylvania Industrial Resource Centers (SPIRC) is a new organization dedicated to improving the competitive performance of smaller manufacturers. One of nine Industrial Resource Centers established in the Commonwealth, SPIRC provides timely and cost effective services which help individual firms identify, learn about and implement more efficient business philosophies, techniques and manufacturing technologies.

SPIRC can assist you in the following ways:

- Demonstrate how you can adopt new techniques to increase productivity, improve quality, cut costs, and match your competition from abroad
- Aid in analyzing automated industrial processes before you purchase them
- Assist managers and employees to adapt to new industrial processes and techniques
- Open lines of communication between you and other manufacturers in your field to stimulate discussion of industrial innovation

At present, SPIRC is working with the Vocational Center at Indiana University of Pennsylvania to develop educational programs for smaller manufacturers in both traditional and emerging industries. Our goal is to introduce manufacturers to new production technologies and management techniques, and explain how to incorporate these changes into their operations in a customized, on-site training format.

We invite you to have a cup of coffee on us while you identify the kinds of new technologies and training programs that will best meet the needs of your company. Enclosed is a two-page survey which will take approximately 10 minutes of your time. Please complete the survey, place it in the enclosed, addressed, postage-paid envelope, and drop it in the mail.

Let us thank you in advance for helping us develop an effective program that is beneficial to you and your employees.

Sincerely,

Martha Lester
Managing Director
SPIRC

Thomas W. O'Brien
Thomas O'Brien, Director
Vocational Center, IUP

Frank Como
Frank Como, Director
CACIS

# MANUFACTURING SURVEY

ompany Name _____ County _____

ddress _____ Phone Number _____

ip _____ Standard Industrial Classification (SIC) Code(s) _____

acsimile (FAX) Machine Number (if applicable) _____

roducts manufactured or produced _____

umber of years in business _____

ame of company representative we may contact _____ Phone _____

ype of business or industry (check all of the following which apply):

( ) machine products
( ) metal products
( ) mine equipment
( ) testing laboratory
Other ( specify)_____
( ) tool and die
( ) steel production
( ) energy production
( ) machine shop
( ) rubber production

////////////////////////////////////////////////////////////////////////////////

1. Number of employees in your organization _____

2. In which of the following area(s) do you feel training educational updating is needed for your organization?

( ) computer aided drafting/design
( ) robots/robotics
( ) solid state motor controls
( ) computer integrated manufacturing
( ) pneumatics
( ) quality control systems
( ) math/algebra/trigonometry
( ) bar coding
( ) just in time manufacturing
( ) hydraulics/fluidics
( ) computer controlled machines
( ) statistical process control
( ) marketing/sales
( ) desktop publishing
( ) wordprocessing/spreadsheets
( ) other (specify) _____
( ) other (specify) _____

3. What method(s) do you currently use to train your employees or upgrade their skills?

( ) vendors
( ) technical schools
( ) other (specify)_____
( ) community colleges
( ) in-house training



BEST COPY AVAILABLE

4. Check all the following situation(s) which are occurring in your company.

a. ( ) Difficult to find new employees with the necessary skills.
b. ( ) Some employees have a high rate of absenteeism.
c. ( ) Customer complaints are on the increase.
d. ( ) The error rate among employees is too high.
e. ( ) Some employees seem to be disinterested in their jobs.
f. ( ) Some of my employees don't follow directions well.
g. ( ) Some employees are not able to follow new procedures.
h. ( ) Some employees cannot operate new equipment we have installed.

5. Check the basic skill(s) which you think your employees should improve upon.

a. ( ) reading
b. ( ) arithmetic/mathematics
c. ( ) written communications
d. ( ) oral communications

6. The following group(s) of workers need the most training in my organization.

a. ( ) new employees
b. ( ) veteran employees

7. I would prefer that employee training would take place at the following time: (check one)

a. ( ) evening hours
b. ( ) Saturday
c. ( ) seminars during the week

8. Would you like to participate in visits to plants where advanced manufacturing technology is showcased? (yes/no) _____

9. Would you like to participate in training and information forums with other manufacturers? (yes/no) _____

If yes, what topics would you like to discuss? (specify) _____

_____

10. List the computer system(s) you use.

a. Be specific _____ Manufacturer's name _____

Model number _____

b. Type of modem and speed (baud rate) _____

If you would like to make written comments or suggestions about training needs not addressed by the survey, please use the back of this sheet.

Thank you for taking time from your busy schedule to respond to our request!

## 6. DESIGNING ADVERTISING MEDIA

Advertising media describing free training programs in high-tech areas such as electronics, computer numerical controlled machinery, and word processing for employees of manufacturing industries were shared with each person who responded to the cooperative demonstration project survey. Media took the form of brochures and flyers which were (a) mailed to personnel managers in prospective manufacturing industries and (b) presented to company representatives by IUP's field resource persons during their visits to factories. Brochures were designed by Mr. Charles Thompson, a vocational education teacher who worked part time during 1989-1990 at IUP's Center for Vocational Personnel Preparation while on sabbatical leave from his regular job as carpentry instructor at the Indiana County Area Vo-Tech School. Mr. Thompson met with the project's co-directors and managers of the SPIRC and CACIS organizations to learn about the project's goals and objectives. He then used this information as a basis for writing text for the marketing media. Mr. Thompson developed the artwork, layout, and content of each brochure then presented them for review by the project's directors. After suggestions and corrections were made, Mr. Thompson created and stored each brochure on a computerized desktop publishing program and printed a camera-ready master. Master copies of each brochure were used to print multiple copies as needed. Printing costs were minimized by using university Xerox-type copiers instead of purchasing services from a commercial printing establishment.

The first brochure that was mailed to respondents of the manufacturing survey was titled, "Puzzled by Technology?" It asked prospective personnel managers if they would like to have help selecting equipment, training their employees, and solving problems related to computer hardware and software in their industry (see the attached sample). Information was included that described how IUP and the cooperative demonstration training project would assist employees and their managers in exploring new technology through field trips, visits to neighboring industrial sites, customized training programs, and demonstration sites. The last panel of the brochure was a pre-addressed, postage-paid client response card that could be mailed back to project staff at IUP by prospective trainees.

Other brochures were designed to advertise specific demonstration sites such as the one held at the Harry T. Kerr Skills Center in Titusville, PA. Other flyers described open house activities in Kittanning, Pa., or outlined technical updating and training workshps in fluid power, solid state motor controllers, CNC equipment operation, computer systems, and quality control (see attached examples of brochures). Each of these workshop-specific flyers included information that reminded personnel managers of the need for this kind of training and a summary of workshop topics and reference materials and textbooks that would be used in the training class. The flyers also included a short introduction to instructors, consultants, and teachers who were presenting

## MARKETING MATERIAL

BROCHURES

- Need Help With: Training? Re-Training? Cross-Training?
  TECHNICAL UPDATING AND TRAINING WORKSHOPS IN FLUID POWER
  Would You Like To Know More About: Hydraulics? Pneumatics? Lubrication?
  Vacuum Systems?

- PUZZLED BY TECHNOLOGY?
  Would You Like Help With: Equipment Selection? Employee Training?
  Problem Solving?

- AN OPPORTUNITY TO ADVANCE YOUR SKILLS
  TECHNICAL UPDATING AND TRAINING WORKSHOPS
  Learn More About: Solid State Controls CNC Operation Computer Systems

- Technical Training Seminar for Industrial Professionals

- Quality Control

- WHAT IS THE CENTER FOR VOCATIONAL PERSONNEL PREPARATION AT IUP?

- High-Tech Training For Advancement and Productivity

workshop content and provided a pre-addressed, postage-paid client response card that trainees used to register for workshop sessions.

## 7. ESTABLISHING TRAINING PROGRAMS AND FACILITIES

The training programs and educational facilities that were established for the cooperative demonstration project can be grouped into five categories.

- o Pennsylvania's county (or area) vo-tech schools
- o community colleges
- o proprietary schools
- o adult "skill centers"
- o private industry

The educational institutions that were grouped in these five categories included:

1. Butler county area vo-tech school
2. Clarion county area vo-tech school
3. Indiana county area vo-tech school
4. Lawrence county area vo-tech school
5. Venango county area vo-tech school
6. Butler county community college
7. Power Safety International, a training school established by the Pennsylvania Power and Light Company
8. Harry T. Kerr Adult Skill Development Center
9. Ralph T. Hiller Hydraulics
10. MAZAK training school

All the county vo-tech schools had been associated with IUP since 1978. Other participating educational institutions and training organizations (except Butler County Community College and MAZAK) had been associated with the Center for Vocational Personnel Preparation at Indiana University of Pennsylvania (IUP) since 1987. These professional relationships were established over the years by IUP's faculty and administrators who deliver the university's "field-based" coursework to men and women who enroll in the vocational teacher licensing program. Butler county community college and the MAZAK training school were the only two schools that did not have a prior linkage with IUP or the vocational teacher preparation center.

Since IUP had successful working relationships with vo-tech schools and other training organizations in the six-county service area, it was relatively easy to use these same sites as training facilities for employees of manufacturing industries who needed training in high-tech subjects. The co-directors of the cooperative demonstration training project met with the administrators of each school to explain the purpose of the program and discuss how adult training classes in subjects like electronics, computer controlled machine tools, word processing, etc. could help local industry. The directors also explained how such linkages could help the vo-tech schools, community colleges and other

training organizations build a reputation as training facilities for workers in local industry.

The directors of each of the nine participating training organizations asked their school's industrial-education coordinator or adult education director to work with Dr. Spewock and Mr. O'Brien. These people included:

George Dreschler - Butler county AVTS
Barney Knorr - Clarion county AVTS
John Jahoda and Mary Beth Sweeney - Indiana county AVTS
Bob Hooven and Mary Jean Tuminella - Lawrence county AVTS
Charles Grace and Stan Parker - Venango county AVTS
Dan Mitchell - Butler County Community College
Ron Beagles - Power Safety International
Bruce Peterson - Harry T. Kerr Skills Center
Bob Dimarcki - Ralph T. Hiller Hydraulics

Dr. Spewock met with each industrial-education coordinator or adult education director in their schools to plan training programs for employees of local manufacturing industries. Working together, they scheduled laboratory and classroom facilities then met with the teachers of each class to determine which textbooks and workbooks should be purchased, and to obtain names of vendors who supply materials that would be needed to train the adult students. Finalized plans were presented to each school's director or principal. The administrators would review the plans, suggest changes if necessary, and provide dollar values to (a) instructor salary, (b) laboratory and classroom rental, (c) equipment rental, (d) materials and supplies, (e) textbooks, workbooks, and duplicating charges.

After each school's director or principal approved the training plans and assigned costs to their implementation, Mike Spewock would write a contract or memorandum of agreement between the school and IUP. After both parties signed the agreement, a purchase order request was written to describe the following:

- o name of host school receiving money for delivering training to adult students
- o administrator or "contact person"
- o names of other vendors of supplies and materials
- o a description of services to be provided
- o description of each class with course outline
- o costs of each expenditure
- o total costs for training

In most cases, salary money for teachers was not included in the purchase order. Individual contracts were drawn for each teacher who agreed

to deliver instruction to employees from industry. These people were paid as "adjunct, temporary, part-time faculty" of the university. This process was followed for the majority of the training programs that were developed for the Cooperative Demonstration Training Project. Table 1 shows a summary of these programs by school and county.

Table 2
Summary of Training Programs for the
Cooperative Demonstration Program for Employees of Manufacturing
Industries in Northwestern Pennsylvania

| School and County | Administrators and their assistants | Training Programs |
|---|---|---|
| Butler county AVTS | D. Drake, G. Dreschler - | welding |
| Butler county community coll. | J. Berry<br>D. Mitchell | electronics<br>mathematics<br>qual.control<br>S.P.C.<br>hydraulics<br>welding<br>blueprint reading |
| Clarion county AVTS | B. Bickerstaff<br>B. Knorr | machine shop<br>trig/geometry<br>mathematics |
| Indiana county AVTS | Wm. Rupell<br>J. Jahoda<br>M. Sweeney | word process<br>Lotus 123<br>C.A.D.<br>electronics |
| Lawrence county AVTS | A. Zarone<br>B. Hooven<br>M.J. Tuminella | C.N.C.<br>Word Process<br>Lotus 123<br>electronics |
| Venango county AVTS | B. Clark<br>C. Grace<br>S. Parker | electronics |
| Power Safety International | M. Denchik<br>R. Beagles | electronics<br>hydraulics |
| Harry T. Kerr Adult Skills Center | M. Black<br>B. Peterson | C.N.C.<br>Demonstration Site |
| Ralph T. Hiller | B. DiMarcki | Fluid Power |

Each instructor who was contracted to teach one or more of the training classes submitted a course outline which summarized the curriculum she or he planned to present. Samples of these outlines are included in section 10 of this process manual.

## Scheduling Classes

Most training classes for employees of manufacturing industries were held in the evening after the normal 8 to 5 workday had ended. In the majority of cases, this met the needs of adult learners who worked the daylight shift. In some cases, employers permitted employees to trade shifts with other workers who were assigned afternoon or night shifts to allow the non-daylight shift workers to attend training classes. Other employers gave their workers "released time" with full pay to attend a special class that would be offered once a week for 6 consecutive weeks, for example, because these employers felt the investment would be returned to them in the form of a better educated, more productive worker. Often, special equipment and teachers became available only during the summer months when the 9-month public school year ended for high school-age students at county vo-tech schools.

Occasionally, workers demanded that they be paid for getting trained, and would not attend class after the normal 8 to 5 workday on their own time. They reasoned that their new knowledge would not only help them be more productive at work and permit them to advance their careers, but would also help their employers compete more successfully in the high-tech marketplace. Employees argued that, if both workers and employers would benefit from employee training, both should also make a committment to training. Employees argued that they would be glad to give their time after work, on Saturday, etc. if the management of the company would provide wages while training took place.

## Instructional Programming

Training program instructors delivered information to adult students using two methods: (a) lecturing to large and small groups of students to give them the theory and knowledge base they needed to understand the concepts of high tech equipment operation, and (b) hands-on training on actual high-tech equipment which the adults would use in industry. Teachers delivered both forms of instruction at each class session. Evaluation of the adults' acquisition of theory was done with paper-and-pencil tests. Multiple-choice, completion, true/false and/or essay-type tests were administered.

Students' grasp of machine operation was evaluated with a competency-based method of testing. Here, the learner demonstrated competence on a

task or machine tool operation by performing that task for the instructor and producing a product which must meet a set of pre-determined specifications.

In all but a few classes, instructors of the high tech courswork provided employers with a list of "letter" grades (A,B,C,D,) for employees who were registered in the classes. A list of competencies attained by each employee was also attached to the grade sheets. Attendance records were also kept. Employers used this information to make personnel decisions within their organizations.

Evaluation

Adults who attended training programs were asked to evaluate their coursework. A paper-and-pencil evaluation instrument was provided to each student which instructed them to rate the teacher in the class, the physical environment, the information they received and the instructional methods used by teachers, guest speakers, and so forth. A sample evaluation instrument has been included in this section.

WORKING DRAFT

## MEMORANDUM OF AGREEMENT

This agreement is entered into as of October 1, 1989, by and between Indiana University of Pennsylvania, Center for Vocational Personnel Preparation, hereafter referred to as the **OPERATOR**, and PENELEC Power Safety International, hereafter referred to as the **PROVIDER**.

Whereas, the Operator has been administering a cooperative demonstration training project for the U.S. Department of Education under a one and one-half year grant, Number V199A90089; and

Whereas, the training project will complete all activities under this grant on June 30, 1990; and

Whereas, the Provider proposes to conduct a portion of the training required by this grant; and

Whereas, the Operator has granted approval to the Provider to conduct a training program.

Now therefore, for and in consideration of the foregoing premises and the mutual promises set forth, the Parties agree to the following.

1. Operator will pay to the Provider a maximum sum of $_____ for the purpose of providing teaching and support materials for 240 hours of instruction in High Tech subjects to include, but not limited to Electricity, Electronics, Hydraulics and Programmable Logic Controls. Actual payment will be based on the established costs noted in Attachment A.

2. Provider will prepare and deliver instruction and support materials during the time period, November 3rd through June 30, 1990.

3. Provider will supply confidential copies of grade reports and student evaluations which will be included in the Operator's final report to the U.S. Office of Education, no later than July 31, 1990.

4. Operator will make three (3) payments to the Provider. Upon final execution of this Agreement, the Provider may submit an invoice to the Operator for 80 hours of the budgeted cost for instruction. Payment will be made within fifteen (15) calendar days of invoice receipt. Upon ...
   Note: Payment schedule is open to negotiation.

5. Provider agrees to maintain confidentiality of all training project and client records used for the purpose of conducting training.

6. Provider and its agents agree to obtain written approval from the Operator and/or the U.S. Department of Education prior to using any information or reports relating to the training project for personal or professional use.

7. This agreement shall terminate on June 30, 1990, unless terminated earlier by the Operator or the U.S. Department of Education.

8. Provider agrees that non-compliance with any terms of the memorandum of agreement may be determined by the Operator as grounds for termination of this agreement with all further payments ceased and repayment of funds required.

Power Safety International, Homer City, PA
Training Facility

BY: _____ DATE: _____
(name) (title)

Indiana University of Pennsylvania Center for
Vocational Personnel Preparation, Indiana, PA

BY: _____ DATE: _____
Thomas O'Brien - Director

_____ DATE: _____

WHO WILL DELIVER INSTRUCTION? Two mechanical/hydraulics engineers from The Ralph Hiller Hydraulics Company They are:
Robert Dimarcki
Steven Teresovic

TIME OF INSTRUCTION: Due to requirements of employees' "shift" work, instruction times and places will vary from classrooms at the Johnstown AVTS to hands-on training "on-site" at the learners' places of employment. Classes will be held 12 times and will average 2.5 hours each meeting. The starting date for classes will be the week of June 11, 1990. The ending date will be July 19, 1990. When classes are held at the AVTS, times will be 6:00 pm to 8:30 pm. and a classroom will be reserved for Tuesday and Thursday evenings. When classes are held on site at factory locations, they will convene at 6:00 pm and end at 8:30 pm. Days of the week will vary depending upon customized training needs of employees and factory owners.

REQUESTED DELIVERY DATE AND PAYMENT FOR SERVICES: Please pay vendor for services no later than July 2, 1990. Classes will end on Thursday, July 19, 1990.

Projected Class Schedule

HYDRAULICS/FLUIDICS FOR EMPLOYEES OF S/S MACHINE CO.

| MEETING # | TOPIC | DATE | LOCATION | INSTRUCTOR |
|---|---|---|---|---|
| 1 | Orientation | June 12 | AVTS | Dimarcki |
| 2 | Safety | June 14 | AVTS | Dimarcki |
| 3 | Fluid power-basic princ. | wk. of June 19 | AVTS | Teresovic |
| 4. | Hyd. Cylinders | wk. of June 19 | AVTS | Dimarcki |
| 5. | Hyd. Pumps | wk. of June 26 | ON SITE | Dimarcki |
| 6. | Hyd. Valves | wk. of June 26 | ON SITE | Teresovic |
| 7. | Basic circuitry | wk. of July 2 | AVTS | Teresovic |
| 8. | Practical app. | wk. of July 2 | ON SITE | Dimarcki |
| 9. | Hyd.theory/math | wk. of July 9 | AVTS | Teresovic |
| 10. | Pneumatics | wk. of July 9 | ON SITE | Teresovic |
| 11. | Lubrication | wk. of July 16 | AVTS | Dimarcki |
| 12. | Vacuum systems | wk. of July 16 | AVTS | Teresovic |

Purchase Order Request from Mike Spewock, Center for Vocational Personnel Preparation, Reschini House, IUP. Phone: ext. 4434

General Information

PROJECT TO CHARGE: V199A90089 - Federal Cooperative Demonstration Program for Employees of Manufacturing Industries

JUSTIFICATION FOR SERVICES: To meet (in part) the objectives of a federal grant funded program

Description of Services to be provided and/or purchased

VENDOR'S NAME AND ADDRESS: The Ralph Hiller Company, 951 Killarney Drive, Pittsburgh, Pennsylvania 15234
TELEPHONE: 412-882-5300
CONTACT PERSON: Mr. Robert DiMarcki, Vice President and General Manager

WHAT SERVICE WILL BE DELIVERED?: Instruction in hydraulics/fluidics will be given to workers in manufacturing industries who need skill upgrading. The instructional service will consist of 30 total hours of education that will include both hands-on training and classroom theory.

Vendor will provide all textbooks, workbooks, practice worksheets, test administration materials, certificates of completion and competency lists for adult learners enrolled in the class

Evaluation of employee skills will take place after instruction has been delivered.

NUMBER OF STUDENTS: 15

ITEMIZED LIST OF SERVICES TO BE PROVIDED WITH ESTIMATED COST

| | | |
|---|---|---|
| Instructor salary - 2 at 25/hour for 30 hours | .... | $1,500 |
| Class Textbooks - 15 at 45.00 each | ..... | 675 |
| Class Workbooks - 15 at 20.00 each | ..... | 300 |
| Duplicating, etc. - 15 at 1.50 each | ..... | 23 |
| TOTAL ESTIMATED COST | .... | $2,498 |

WHERE WILL INSTRUCTION TAKE PLACE? Greater Johnstown Area Vocational-Technical School, 445 Schoolhouse Road, Johnstown, PA 15904

## 8. LINKAGES WITH INDUSTRY

When the directors of the cooperative demonstration project wrote their grant proposal, they were acutely aware that the challenges to northwestern Pennsylvania's industrial and economic growth demanded increased emphasis on quality training or retraining for adult employees of manufacturing industries. In the past, both vocational schools and industries had offered educational programs which were designed to update workers' skills. Each organization, however, provided training on its own independent of the other. Obviously, this incurred duplication of effort, long hours of expensive training time, and enormous expense for managers of industry in the private sector and administrators of vocational schools in the public sector.

The proposal writers (Spewock and O'Brien) decided that a more effective model could be provided for both factories and schools if linkages were established between industry and secondary vocational schools, community colleges, and proprietary schools in western Pennsylvania. They reasoned that linkages of this nature could provide technical updating and cross-training in high-tech areas such as electronics, word processing, computer numerical controlled machining, fluid power, Lotus 123 spreadsheet programming, and so on. This would be done using industrial facilities and vocational school shops as "classrooms" and industrial experts and vocational school teachers as "faculty." Outcomes of the 18-month cooperative demonstration project have demonstrated that such linkages can be successful. Training programs can be scheduled on an as-needed basis during the day, in the evening throughout the year, and during the public school's summer vacation months.

The key to successful linkages between industry and the public vocational school system is a strong model of operation. The model can be implemented by a third party facilitator housed at a local community college, two-year, or four-year college, or university since higher education units usually have access to and knowledge of private sector companies, the public school system, and curriculum guides for high-tech training programs. They also have the flexibility in time and resources required to link industry and schools together, to demonstrate the model for them, and to provide guidance for growth. Dr. Arthur G. Hanson, Chancellor of Texas A & M University, is one proponent of this kind of industry-education linkage for upgrading the skills of employees in manufacturing industries. In a recent presentation to the National Association of Electrical Distributers in San Francisco, Dr. Hansen said:

> A group of industries, a university and other schools should pool resources and support research, development and training in new, high technology areas. Some schools are

> developing...technology centers where it is hoped that an exchange of ideas (with industry) and a favorable intellectual climate will lead to new types of cooperative arrangements. Many states have already put sizable sums into university activities for one special reason--to attract industry. If this country is to remain in the forefront economically, we must emphasize...education and re-training. One activity that would strengthen this goal is the building of relationships between the private sector and education. Industry and educators must work together to strengthen education in individual states in America.

Recommended Objectives for Models for Industry-Education Linkages

Terminal Objective - To establish a linkage between a university, private industry, and selected secondary and postsecondary vocational-technical schools for the purpose of developing a model for upating workers' knowledge in new and emerging high technologies.

Enabling Objectives Required to Accomplish the Terminal Objective

1. Establish an industry-education advisory committee.

This objective should be carried out by the program's director who contacts members of industry and directors of secondary and postsecondary vocational-technical schools. Members from these units should agree to serve on the committee to develop guidelines for the model for the technical updating linkage.

2. Develop a preliminary curriculum design.

This objective should be carried out by the program director and industry representatives. Together, this team can develop a generic outline of common training programs needed by industry as suggested by the advisory committee. These may include but probably will not be limited to (a) introduction to automated manufacturing systems, (b) robotics, (c) solid state programmable controllers for motors and industrial equipment, (d) Lotus 123 for spreadsheet development, (e) word processing, (f) electronics, (g) fluid power, (h) higher-level mathematics, and (i) computer-assisted drafting and design. A variety of "mini curriculums" may also be developed for people who need a basic understanding of high-tech topics but who need not become experts. Salespersons and management personnel may fall into this category. Other, more detailed curricula will need to be developed to target the needs of operations and maintenance personnel and first-line supervisors assigned to equipment operations.

3. Form an interdisciplinary curriculum development team.

This objective can be completed by the program director, who must identify and hire experts in the areas of instruction listed in the advisory committee's outline of common training programs. The team will conceptualize, design, program, and develop text materials for the required curricula. The team will consist of experienced subject matter consultants and experts in high-tech fields. Some of these subject matter experts may be hired to pilot-test the model for technical updating at vocational schools or industrial facilties where high-tech equipment is located.

4. Pilot-test the training model.

This objective may be carried out by two or more experts from the interdisciplinary development team who will be supervised by the program's director. The director should locate a vocational school training site and carry out the logistics needed to advertise, register, transport, and house private industry employees near the training site. Training seminars of varying lengths will be needed to accommodate the high-tech topics selected. Curriculum materials chosen for training should use real-life examples rather than theoretical concepts. Simulations and hands-on practice with actual high-tech equipment should be used wherever possible. Pretests and posttests tied to stated, competency-based, learner-centered objectives should be used. Immediate, individualized feedback to student responses must be provided. Safety must also be emphasized throughout the programs.

5. Evaluate the training programs.

Extensive review of all curriculum materials should be carried out by the advisory committee and subject matter experts. Independent reviewers may be asked to test the technical and mechanical integrity of course delivery before it is introduced to trainees. Members of the target audience from industry and vocational education will provide feedback on user appeal, appropriateness of instructional strategies, and mastery of objectives. These can be accomplished with the use of paper-and-pencil evaluation instruments.

## 9. SAMPLE TRAINING PROGRAMS

This section contains sample curriculum outlines used to train men and women employed in manufacturing industries in Armstrong, Butler, Indiana, Lawrence, Mercer and Venango counties in western Pennsylvania. Curriculum outlines selected for review include the following:

| Topic for Training | School or Training Organization |
|---|---|
| o Fluid Power | Ralph Hiller Co. Educational Group |
| o Lotus 123 | Indiana County AVTS |
| o Intro. to Word Perfect | Indiana County AVTS |
| o Computer Assisted Drafting | Indiana County AVTS |
| o Electronics | Venango County AVTS |
| o Computer Numerical Control | H.T. Kerr Adult Skill Center |
| o 3-Dimension Programming | MAZAK Training School |
| o Electronics/Hydraulics | PowerSafety International |
| o Statistical Process Control | Butler County Community College |
| o Electricity/Electronics | Butler County Community College |

# TRI-STATE SAFETY

RD#1 BOX 293A • UNIONTOWN, PA 15401 • (412) 439-2601


THE 1990 NATIONAL ELECTRICAL CODE CHANGE REVIEW

OBJECTIVE:

To provide understanding of changes in the 1990 National Electrical Code.

WHO SHOULD ATTEND:

Inspectors, electrical contractors, designers, supervisors, construction and maintenance electricians, safety engineers, electrical engineers and their apprentices.

DESCRIPTION:

The course provides a detailed examination of the 1990 NEC. It covers new rules and changes, including those affecting overcurrent protection, proper wiring methods, permitted uses, and motor installations. Also covered are new or revised definitions, branch circuits, feeders, GFCI's, grounding, identification, lighting and receptacles.

PREREQUISITE:

There is no prerequisite and course materials will be provided.

INSTRUCTOR:

John Peton is president and director of Tri-State Safety, an industrial training and consulting firm in Uniotown, Pa., which specializes in training and inspections for the electrical construction and mining industries. Mr. Peton conducts seminars and classes on the NEC for companies that seek to have their employees certified as apprentice, journeymen, and master electricians as well as those seeking mine electrician qualification.

AREA CODE (412) 882-5300
TELEX 81-2360

Ralph A. Hiller Company

951 KILLARNEY DRIVE • PITTSBURGH, PA. 15234

RALPH A. HILLER COMPANY

EDUCATION GROUP

# IN-PLANT FLUID POWER EDUCATION

## COURSE SYLLABUS

AREA CODE (412) 882-5300
TELEX 81-2360

Ralph A. Hiller Company

951 KILLARNEY DRIVE • PITTSBURGH, PA. 15234

WELCOME TO THE TECHNOLOGY OF FLUID POWER!

Over the past thirty nine years, the Ralph A. Hiller Company has established a reputation based on the most fundamental of good business practices; "To assist people in solving problems in the Fluid Power field with the best product, manufactured to the highest standard of quality, backed by excellent service." This philosophy has been the foundation on which we have established our education group.

All Hiller Company Education Group Training Programs (excepting those bearing a specific brand name in the following syllabus) are unbiased and give proportional coverage to each subject according to its relative importance. The programs are designed for people who are in the field designing, operating and servicing equipment. They are not intended as theoretical, mathematical, scientific treatments or selling sessions of the subject. Since we are in the business of putting circuits and packages together, we are quite familiar with the way fluid power is put to work in real life, and communicate this knowledge in the clearest way we know how, with all courses taught by reliable industry professionals.

We trust that any course selected will provide your staff with valuable, quality information presented in a true educational fashion - this is our pledge.

Sincerely,

RALPH A. HILLER COMPANY

Bob A. DeMarcki
Vice President-Operations

BAD:es

RAHCO 1.0 ELEMENTARY FLUID POWER

This course is an elementary overview in fluid power. It is designed to introduce the beginning student to fluid power concepts and at the same time show how they relate to other familiar phenomena. The course points out typical components which might be encountered in a typical hydraulic or pneumatic system and is intended for use by personnel who may come in contact with fluid power equipment but not need the direct knowledge presented in Industrial Fluid Power I, II, or III (RAHCo. 2.0, 3.0, & 4.0).
Course Length: 16 Hours

RAHCO 2.0 INDUSTRIAL FLUID POWER I

Introduces the student to many important principles underlying fluid power, then gives a detailed description of cylinders, valves, pumps and accessories; how they work and how they are used. Some circuitry is included. Every subject is treated from the practical side with some emphasis on theory and mathematics, covering hydraulics, pneumatics, lubrication and vacuum.
Course Length: 30 Hours

RAHCO 3.0 INDUSTRIAL FLUID POWER II

This is a more advanced course using Industrial Fluid Power I (RAHCo. 2.0) as a basis and prerequisite. It covers many additional areas of design, both air and hydraulic, such as various types of cylinder loads; direction and force, and speed control of cylinders, with sample circuit diagrams, design charts and formulae. Many kinds of directional and pressure control valves are shown and explained with sectional drawings and example circuits showing how they are used. The course covers piston and rotary type pressure intensifiers w/circuitry as well as air over oil applications in which air is used for power with an oil loop for accurate control. Finally, many sketches are included showing component usage on both normal and unusual application.
Course Length: 30 Hours

RAHCO 4.0 INDUSTRIAL FLUID POWER III

The third advanced level is primarily devoted to mechanical output devices - air and hydraulic motors, rotary and specialized linear actuators, flow dividers, etc. It follows the same format as Industrial Fluid Power I & II (RAHCo. 2.0 & 3.0, both required as prerequisites) with circuit drawing, charts and simplified diagrams. These subjects, among many others are covered: hydraulic motor details, motor/load matching, specialized circuitry for direction and speed, closed loop hydrostatic transmissions, efficiencies and installations, acceleration torque, air motors and advanced circuitry, rotary actuators and advanced circuitry, power steering, advanced flow dividers, bootstrapping circuits and much more.
Course Length: 30 Hours

RAHCO. 5.0 IN-PLANT FLUID POWER

Designed for profitable application by users, technicians and engineers who wish to learn from the experience of others rather than by making their own mistakes. it includes ideas by the dozen on many topics such as how to improve speed or efficiency of existing cylinders, for finding and correcting causes of recurring trouble, for better ways of installing and maintaining equipment. These ideas were learned by experience over many years of designing, installing and troubleshooting fluid power systems. We have compiled this into a companion course of additional information for students who have already completed at least Industrial Fluid Power Courses I and II (RAHCo 2.0 and 3.0) as prerequisites.
Course Length: 30 Hours

RAHCO 6.0 FLUID POWER CONTROL - ELECTRIC AND FLUIDIC

The electrical section describes solenoid valves, limit switches, relays, pushbuttons, timers, etc., which are used in electrical control of air and hydraulic cylinders. We teach in simple language, telling how to wire up these components to get such actions as automatic cylinder return or reciprocation, sequencing or programming of several cylinders, dwell, counting and stacking of parts, index clearance, motors and motor starters and many more. The fluidics section shows how to use fluidic gates, pushbuttons and interface valves to control air or hydraulic cylinders in many of the same functions shown for electrical control. How to filter and regulate the compressed air for fluidic gates. There is no fancy talk about Boolean Algebra, truth tables or fluid logic diagrams. Although a very fundamental treatise, Industrial Fluid Power I (RAHCo 2.0) is required as a prerequisite.
Course Length: 30 Hours

RAHCO 7.0 AIR LOGIC DESIGN

Air control systems (sometimes referred to as fluidics or pneuma-logic) are a relatively old development in the industrial control scene however, they are one of the least understood disciplines in the formation of the entire system of fluid power. This course examines all facets of machine control, with a view toward simplifying design procedures and techniques wherever possible. Employing basic power valve symology is covered along with particular characteristics and applications. To this we add the building block approach in the area of conceptual design, requiring Industrial Fluid Power I & II (RAHCo 2.0 and 3.0) as prerequisites.
Course Length: 100 Hours

RAHCO 8.0 HYDRAULIC LOGIC ELEMENT (POPPET STYLE) DESIGN

During the mid-seventies, hydraulic logic elements (sometimes called poppet cartridge or cartridge valving) were introduced from Europe as a means of efficiently controlling high flows and pressures with excellent response. This course is presented in building block style classes, each covering a narrow scope of the entire discipline. Through skillful application of these cartridge components, techniques are taught to promote a higher acceleration, lower shock, more controllable machine system. Requires Industrial Fluid Power I & II (RAHCo 2.0 and 3.0) as prerequisites.
Course Length: 40 Hours

RAHCO 9.0 FLUID POWER CIRCUITRY

Designed for profitable application by users, technicians and engineers involved in the design of machinery. This course is a building block approach to develope machine circuitry from the experience of others rather than personal trial and error attempts. Its content goes beyond that of the advanced circuitry taught within Industrial Fluid Power III (RAHCo 4.0) into the tricks of the trade used by industry professionals and requires Industrial Fluid Power I, II, & III (RAHCo 2.0, 3.0, and 4.0) as prerequisites.
Course Length: 20 Hours

RAHCO 10.0 HYDRAULIC PROPORTIONAL AND SERVO TECHNOLOGY

This course examines as many facets of machine control as possible in the discipline of proportional and servo technology. It includes ideas by the dozen on topics such as improvement of machine speed and better ways of installing and maintaining equipment. Techniques are taught to promote higher acceleration, lower shock and better controllability. Prerequisites are Industrial Fluid Power I, II, & III (RAHCo 2.0, 3.0 and 4.0).
Course Length: 20 Hours

RAHCO 11.0 COMPRESSOR THEORY

Designed for the practicing engineer, about to enter the compressed air field. This course covers information beginning with the laws of physics and goes on to advanced technical theory. On the practical side, many different techniques are discussed as well as direct applications of compressed air and its safe use, including sections on pressure coal mining, off-shore drilling techniques and industrial robots. Also included are sections covering noise and vibration and heat recovery. Prerequisites are a BS degree in engineering and minimum of (2) years of practical fluid power experience.
Course Length: 80 Hours

RAHCO. 12.0 "COMPRESSED AIR CONDITIONING"

This course is a guide for individuals who are responsible for compressed air systems. In compressed air operations the potential for damage and loss caused by system degredation or failure is very high. Subjects covered are power air, process air, instrument and breathing air as well as the techniques to reliably condition each for its respective purpose. Students should have a technical education or background and Industrial Fluid Power I (RAHCo 2.0) as prerequisites.
Class Length: 16 Hours

RAHCO 13.0 "YOUR COMPRESSED AIR SYSTEMS"

A totally custom approach to education. These classes are taught based on Hiller Company Instructor's pre-course investigation and survey of all pneumatic equipment within your facility(ies). All subject matter is kept relative to your in-house components and systems and is taught at maintenance or design levels of your choice, with all printed material custom written or synonymous to your equipment. Students prerequisites are dependent on your desired end result.
Class Length: To be discussed.

RAHCO 14.0 "YOUR HYDRAULIC EQUIPMENT"

Customized training. Classes are based on Hiller Company's precourse investigation and survey of the hydraulic equipment you currently have or intend to purchase. All subject matter is kept relative to your in-house components and systems and taught at maintenance or design levels of your choice. Any printed matter is custom written or kept within the realm of your equipment. Students prerequisites are dependent on your desired end result.
Class Length: To be discussed.

RAHCO. 15.0 VICKERS INDUSTRIAL HYDRAULICS

This course is devoted primarily to the operation and maintenance of Vickers equipment. It includes general chapters covering basic hydraulics and all types of pumps, motors and control valves. The Vickers equipment covered is limited to the representative series most commonly encountered in the machine tool industry.
Course Length: 30 Hours

RAHCO. 16.0 PARKER INDUSTRIAL HYDRAULIC TECHNOLOGY

Designed for the beginning student, this course starts with "The Physical World of a Machine". The student is lead through topics ranging from basic physical concepts to Parker component operation and the typical Parker brand system's application.
Course Length: 30 Hours

RAHCO. 17.0 REXROTH INDUSTRIAL HYDRAULICS

The primary direction of this course is to the operation and maintenance of Rexroth Industrial Equipment. It includes general chapters covering basic hydraulics as well as Rexroth's types of pumps, motors and control valves.
Course Length: 60 Hours

REVISED 11/5/87

PRICING AND DETAILS

RAHCO. 1.0 "ELEMENTARY FLUID POWER"
Class Length: 16 Hours
Class Size: 10 Student Minimum
Price: $100.00 net each student plus instructor's travel

RAHCO. 2.0 "INDUSTRIAL FLUID POWER I"
Class Length: 30 Hours
Class Size: 10 Student Minimum
Price: $160.00 net each student plus instructor's travel

RAHCO. 3.0 "INDUSTRIAL FLUID POWER II"
Class Length: 30 Hours
Class Size: 8 Student Minimum
Price: $200.00 net each student plus instructor's travel

RAHCO. 4.0 "INDUSTRIAL FLUID POWER III"
Class Length: 30 Hours
Class Size: 5 Student Minimum
Price: $275.00 net each student plus instructor's travel

RAHCO. 5.0 "IN-PLANT FLUID POWER"
Class Length: 30 Hours
Class Size: 8 Student Minimum
Price: $300.00 net each student plus instructor's travel

RAHCO. 6.0 "FLUID POWER CONTROL - ELECTRIC AND FLUIDIC"
Class Length: 30 Hours
Class Size: 8 Students Minimum
Price: $275.00 net each student plus instructor's travel

RAHCO. 7.0 "AIR LOGIC DESIGN"
Class Length: 100 Hours
Class Size: 5 Students Minimum
Price: $1575.00 net each student plus instructor's travel

RAHCO. 8.0 "HYDRAULIC LOGIC ELEMENT DESIGN"
Class Length: 40 Hours
Class Size: 5 Student Minimum
Price: $620.00 net per student plus instructor's travel

RAHCO. 9.0 "FLUID POWER CIRCUITRY"
Class Length: 20 Hours
Class Size: 5 Student Minimum
Price: $400.00 net per student plus instructor's travel

RAHCO. 10.0 "HYDRAULIC PROPORTIONAL AND SERVO TECHNOLOGY"
Class Length: 20 Hours
Class Size: 5 Student Minimum
Price: $600.00 net per student plus instructor's travel

RAHCO. 11.0 "COMPRESSOR THEORY"
Class Length: 80 Hours
Class Size: 5 Student Minimum
Price: $2475.00 net per student plus instructor's travel

RAHCO. 12.0 "COMPRESSED AIR CONDITIONING"
Class Length: 16 Hours
Class Size: 8 Student Minimum
Price: $250.00 net per student plus instructor's travel

RAHCO. 13.0 "YOUR COMPRESSED AIR SYSTEMS"
Class Length: To be discussed
Class Size: To be discussed
Price: To be quoted on request

RAHCO. 14.0 "YOUR HYDRAULIC EQUIPMENT"
Class Length: To be discussed
Class Size: To be discussed
Price: To be quoted on request

RAHCO. 15.0 "VICKERS INDUSTRIAL HYDRAULICS"
Class Length: 30 Hours
Class Size: 10 Student Minimum
Price: $250.00 net per student plus instructor's travel

RAHCO. 16.0 "PARKER INDUSTRIAL HYDRAULIC TECHNOLOGY"
Class Length: 30 Hours
Class Size: 10 Student Minimum
Price: $200.00 net per student plus instructor's travel

RAHCO. 17.0 "REXROTH INDUSTRIAL HYDRAULICS"
Class Length: 60 Hours
Class Size: 10 Student Minimum
Price: $400.00 net per student plus instructor's travel

DETAILS

a) Price: All prices include textbook and handouts for each student registered. Oversize groups quoted on request.

b) Class Length: Hours as shown are the total instructional time excluding break periods. These hours are broken into class schedules (ie 30 Hour class = 1 hour class Monday, Wednesday & Friday for 10 weeks), subject to discussion and Hiller Co suggestion prior to contract.

c) Class Size: Represents the minimum number of students a course may be contracted for. Drop-outs or no shows will be billed at full rate based on initial size contract.

d) Background Sheets: Each student is required to complete a background sheet several weeks in advance of the first class. These sheets are strictly confidential and used only by the instructor to gear his presentations to the student body.

e) Quizzes: All students are quizzed periodically with corrected paperwork returned during the next class, except where workrules prohibit.

f) Tests: All students are given formal tests periodically with corrected paperwork returned during the next class, except where workrules prohibit.

g) MidTerm/Final Exam: All courses of 30 hours total or longer utilize mid-term & final exam testing, except where workrules prohibit, with corrected paperwork returned during the next class.

h) Worksheets/Reading Assignments: All courses of 30 Hours total or longer utilize worksheets and reading assignments as homework except where workrules prohibit, with corrected homework returned during the next class.

i) Grades: All scoring records (quizzes, tests, exams & work-sheets) are maintained and tabulated for each student and if requested, submitted to the contracting employer.

j) Confidential Opinion: Near the end of each course of 30 hours or longer, our instructors prepare a confidential, one paragraph opinion of each student's participation, absorbtion and attitude, submitting it to the contracting employer (except where workrules prohibit).

k) Instructor & Course Critique: As our performance is important, each student is required to complete an evaluation sheet on his instructor's ability and course content. Copies are issued to the Hiller Company and the contracting employer.

l) Behavior: Hiller Company Instructors reserve the right to eject any student from class due to poor behavior with a report to the contracting employer. Should the permanent ejection of any student become necessary, the contracting employer will be refunded the prorated cost at time except text book and handout value.

m) Summary Notebook: At the end of each course, the contracting employer will receive one summary notebook containing one copy of each handout, text, quiz, worksheet, grade summary, critiques, etc.

n) Billing: Invoicing for the course selected will be 30 days after your release of purchase order (proper credit application req'd) or completion of class, whichever is sooner, payable net 30 days.

o) Instructor's Travel: Due to varying locations, instructor's travel may only be quoted after determining site location for class.

p) Advance Notice: To insure a proper presentation, purchase orders must be placed a minimum of 4 weeks prior to first class.

q) Audio/Visual Equipment: Some courses require A/V equipment for proper presentation. Hiller Company will utilize its own portable slide and video equipment however, if class size dictates larger screens for proper presentation, the contracting employer will be responsible for its procurement and cost.

r) Rented Classrooms: Should rental of a classroom be required, the contracting employer will be responsible for its procurement, scheduling and cost.

s) Certificates: As our courses are very serious, only those students completing a course with a minimum level of competancy (as established by Hiller Company) or grade point level will be issued a certificate (unless contracting employer dictates otherwise).

t) Revisions: All prices, terms, conditions, course content and/or availability are subject to change without notice.

# L O T U S  1 - 2 - 3

Class: Lotus 1-2-3 Adult Education, Indiana County Vo-Tech
Date: October 23-27, 1989 6:00-9:00 p.m.
Instructor: Sharon Bracken
Hours: 15 Hours

Lotus 1-2-3: Actual hands-on use of spreadsheet using the Student Edition of Lotus 1-2-3, (student disk included), teaching the fundamentals of spreadsheets, graphics, and databases.

1. Creating a Worksheet - Objectives:

* Move around the worksheet
* Enter labels and values
* Edit entries
* Use the Command menu
* Enter formulas
* Save a worksheet

2. Enhancing a Worksheet - Objectives:

* Change column widths
* Insert and delete rows and columns
* Copy cell entries
* Use @functions
* Erase cell entries
* Print a worksheet
* Save and replace files

3. Creating a Line Graph - Objectives:

* Create line graphs
* Specify the X axis
* Specify data to be graphed
* Create and edit titles
* Create and edit legends
* Use data labels
* Use grids
* Save current graph settings

4. Creating and Printing Graphs - Objectives:

* Name and recall graph settings
* Create bar, stacked-bar, and xy graphs
* Create pie and exploded pie charts
* Save graphs
* Print graphs

5. Creating a Database - Objectives:

* Create, Format and modify a database
* Insert, edit, and delete records
* Sort a database
* Find selected records

# L O T U S  1 - 2 - 3

Class: Advanced Lotus 1-2-3 Adult Education, I.C.A.V.T.S
Hours: 15 Hours Advanced Lotus 1-2-3
Prerequisite (Beginners Lotus 1-2-3)

Advanced Lotus 1-2-3: Actual hands-on use of spreadsheet using the Student Edition of Lotus 1-2-3, (student disk included), teaching more advanced topics. Students completing the 30 hour course will be able to organize and analyze information in a spreadsheet effectively and efficiently. In addition, they will be able to display information in charts and graphs, enter and extract information from databases, and create and use macros.

6. Using Worksheets - Objectives:

* Locate and eliminate circular references
* Hide and unhide columns
* Name a range of cells
* Use the @MIN, @MAX, and @AVG functions
* Format cells

7. Managing a Large Worksheet - Objectives:

* Freeze horizontal and vertical titles
* Create, scroll, and use windows
* Extract and combine worksheets
* Enter and justify text
* Restrict file access using passwords

8. Using a Database - Objectives:

* Use database @functions
* Create a frequency distribution table
* Extract records from the database
* Create a one-way data table

9. Creating and Using Macros - Objectives:

* Create, edit, and modify macros
* Document macros
* Create interactive macros
* Use the STEP feature

10. Reference Review - Objectives:

* Basic Skills
* Commands
* Macro Basics & Advanced Macro Commands
* @Function Format
* The PrintGraph Program

# d B A S E  III  P L U S

Class: dBASE III PLUS Adult Education, Indiana County Vo-Tech
Date: October 16-20, 1989 6:00-9:00 p.m.
Instructor: Sharon Bracken
Hours: 15 Hours

dBASE III PLUS: Actual hands-on use of database management using the Educational Version of dBASE III Plus (student disk included). Novice users can easily create databases, locate and edit data, and organize that data to display information.

1. Creating a Database - Objectives:

* Database concepts
* Starting dBASE III Plus
* Creating the first database file
* Entering data into a database
* Appending more records
* Exiting dBASE III Plus

2. Maintaining a Database - Objectives:

* Loading a database file from disk
* Opening and Closing Files
* The EDIT command
* Examining database structure
* Modifying the database structure
* Locating a record in the database

3. Manipulating a Database - Objectives:

* Rearranging database order
* The SORT command
* Indexing

4. Extracting Information from a Database - Objectives:

* Creating Labels
* Printing Mailing Labels
* Creating Reports

5. Advanced Report Forms - Objectives:

* Totaling
* Subtotaling
* Conditional
* Indexing

# Introduction to WordPerfect®
# Course Outline

This course is designed for the individual that is about to advance into the world of wordprocessing. Keyboarding (typing) skills are required but no previous wordprocessing experience is necessary. Participants will be provided with WordPerfect® templates, information sheets and disks with sample documents for study and future reference. Those students with prior wordprocessing experience will be permitted to advance through the materials at their own pace to more specialized lessons.

I. Introduction
   - A. Starting your computer
     1. DOS commands/operations
     2. copying/formatting
     3. directories/sub-directories
     4. filenames
   - B. Starting WordPerfect®
   - C. Creating a document
   - D. Moving the cursor
   - E. Inserting/deleting text
   - F. Inserting/deleting hard returns
   - G. Saving your document
   - H. Exiting WordPerfect®

II. Harnessing Function Features
   - A. Retrieving a file
   - B. Changing default directory
   - C. List Files
   - D. Boldfacing
   - E. Underlining
   - F. Indenting
   - G. Centering text
   - H. Inserting Date
   - I. Using Help

III. Blocking
   - A. Blocking text
   - B. Underlining/boldfacing with block on
   - C. Deleting blocked text
   - D. Canceling a deletion with undelete
   - E. Moving text
   - F. Copying text with move
   - G. Centering blocked text
   - H. Switching lower to upper case

IV. Printing
   - A. Printing current document
   - B. Printing single page
   - C. Printing a file
   - D. Canceling print
   - E. Printer control screen

V. Formatting Text
   - A. Spacing
   - B. Margins
   - C. Page numbering
   - D. Justification
   - E. Hyphenation

VI. Perfecting Documents
   - A. Editing with reveal codes
   - B. Spell check document
   - C. Using thesaurus

SCHOOL: Indiana County Area Vocational Technical School

PROGRAM: Adult Education AUTOSKETCH 2.0

INSTRUCTOR: Kevin Rebuck

HOURS: 60

COURSE OVERVIEW:

The purpose of this course is to familiarize the student with CAD (Computer-Aided Drafting) at a beginner level. The student will know all the commands used in a CAD program called AUTOSKETCH. We will take a close look at this system to gain experience when introduced to a more complex program. At the end of this course the student shall be able to boot-up the system, use all the commands in Autosketch, file drawings, and plot a drawing.

| | |
|---|---|
| Lesson 1. | Boot-up and Shutdown System |
| Lesson 2 | Cartesian Coordinate System |
| Lesson 3 | Grid and Snap Commands |
| Lesson 4. | Setup for a Drawing |
| Lesson 5. | Basic Draw Commands |
| Lesson 6. | Assist Menue Commands |
| Lesson 7. | File Menue |
| Lesson 8. | Files and Plot Info |
| Lesson 9 | Plot Commands |
| Lesson 10 | Group Commands |
| Lesson 11 | Change Commands |
| Lesson 12. | Layer |
| Lesson 13. | Array Commands |
| Lesson 14. | Dimensioning |
| Lesson 15. | Measure Commands |
| Lesson 16. | Library Commands |

SCHOOL : INDIANA COUNTY VOCATIONAL-TECHNICAL SCHOOL

PROGRAM : ADULT NIGHT CLASSES

INSTRUCTOR : Kevin Pobuck

HOURS : 60

COURSE OVERVIEW:

The purpose of this course is to familiarize the student with Computer-Aided Drafting using the AUTOCAD program. The student will learn and practice basic commands on a computer to gain hands on experience. At the end of this course you will be able to boot-up the system, draft a simple drawing, file the drawing, plot the drawing and shut down the system.

CLASS SCHEDULE:

This course is scheduled is to be taught 20 classes ,each to be (3) hours. There will be class on Tuesday and Thursday of each week for approx. (10) ten weeks. This schedule is subject to change depending on actural class progress.

Lesson 1. Introduction and Start-up & Shutdown
Lesson 2. GRID, AXIS, SNAP, AND OSNAP COMMANDS
Lesson 3. TOGGLE AND ERROR KEYS
Lesson 4. CARTESIAN COORDINATES
Lesson 5. REDRAW, REGEN, ZOOM, PANNING, AND SCALE COMMANDS
Lesson 6. SETTING UP THE DRAWING
Lesson 7. LINE AND POINT COMMANDS
Lesson 8. CIRCLE AND ARCS COMMANDS
Lesson 9. TRACE COMMANDS
Lesson 10. TEXT AND DTEXT
Lesson 11. MOVE AND COPY COMMANDS
Lesson 12. BREAK AND FILLET COMMANDS
Lesson 13. ELLIPSE AND DONUT COMMANDS
Lesson 14. SKETCH AND OFFSET COMMANDS
Lesson 15. POLYGON COMMANDS
Lesson 16. ARRAY AND MIRROR COMMANDS
Lesson 17. DIVIDE, TRIM, EXTEND, AND ROTATE COMMANDS
Lesson 18. PLOT COMMANDS
Lesson 19. LAYER AND COLOR COMMANDS
Lesson 20. TEXT FONTS AND STYLES

COURSE TITLE: INTERMEDIATE COMMANDS--- AUTOCAD

SCHOOL: INDIANA COUNTY VOCATIONAL - TECHNICAL SCHOOL

PROGRAM: ADULT NIGHT CLASSES

INSTRUCTOR: Kevin Rebuck

HOURS: 60

COURSE OVERVIEW:

In this course we will take a close look at the more advance commands and options with AUTOCAD release 10 program. The student will be able to practice the basic commands and options that were learned from the first basic course along with the more advance commands. At the end of this course the student shall be able to draft more difficult drawings and gain speed to become a efficient CADD OPERATOR.

CLASS SCHEDULE:

This course is scheduled to be taught in 20 classes,each class to be (3) three hours long. There will be class on Tuesday, Wednesday, and Thursday for approx. three weeks. This Schedule is subject to change due to class progress.

Lesson 1. Review Basic Commands & Inquiry Commands
Lesson 2. Layer Commands
Lesson 3. Blocks, Wblocks, and Insert Commands
Lesson 4. Dimensioning Commands
Lesson 5. Polylines Commands
Lesson 6. Attributes
Lesson 7. Hatch Commands
Lesson 8. Fill and Solid Commands
Lesson 9. Stretch, Explode, Scale, Commands
Lesson 10 QTEXT, Linetype, Chamfer, Commands
Lesson 11. Shell and Time Commands
Lesson 12. Measure, Divide Commands
Lesson 13. File Commands , Rename Commands
Lesson 14. USER COORDINATE SYSTEM
Lesson 15. Introduction to 3-D
Lesson 16. Drawing in 3-D

BASIC ELECTRICITY

PROJECTED HOURS OF INSTRUCTION

| Title | Hours |
|---|---|
| Direct current | 17.5 |
| Alternating current | 7.5 |
| RCL circuits | 5.0 |
| Semiconductor electronics | 7.5 |
| Digital electronics | 12.5 |
| Microprocessor systems | 7.0 |
| Troubleshooting | 5.0 |
| Total | 62.0 |

STUDY GUIDE
for
SOLDERING WRITTEN TEST

1. Read the fusion diagram and determine the melting point of solders.

2. The cleaning of a copper tip can be done by filing or sanding, then retinning.

3. Burns can be caused be splattered solder, flux or the soldering equipment.

4. The first aid for burns is submersion in cold water.

5. Given a list of solders, determine which one has the lowest melting point.

6. Solder comes in various forms. The most common are wire and bar.

7. Define:
   a) Dross
   b) Tinning
   c) Acid flux
   d) Wetting
   e) Alloy
   f) Fillet

8. Acid fluxes use latic, oleic and stearic acids in their makeup.

9. Wicking is the capillary action of stranded wire with molten solder.

10. The three main qualities of a good soldered joint are good wetting, concave fillet, bright and shiny.

11. Two methods of removing solder are using a vacuum device or solder wick.

12. The melting of the insulation can be caused by excess wicking or overheating.

13. Solder is an alloy made up of tin and lead, however, it can be also can be made using silver, bismuth or other elements.

14. The minimum distance from a component and the bend in the lead should be 1/16 inches.

15. Making a solder heat bridge provides good heat conduction to the work.

16. Semiconductors need prtected from static electricity and heat.

17. If a soldered joint is moved before the solder is solidified, it may cause a fractured joint.

18. A solder pot should maintain a temperature of 500 degrees.

19. Alloys that are called eutectic, are alloys that have the lowest melting point.

20. Tinning can be done be using a soldering iron or solder pot.

21. Rosin core solder is the only type of flux used for electrical work.

22. Three types of component lead mounting on PC boards are stud, clinched and swagged.

23. The purpose of flux is to do some cleaning and frevent oxidation .

24. A cold soldered joint is caused by not enough heat.

WINDY HILL MACHINE
CNC TRAINING PROGRAM

Course Outline

CNC ORIENTATION:

1. Histery of NC/CNC
2. Numerical Control: What It Is
3. NC/CNC Programming
4. CNC Data Input
5. CNC Tooling & Fixturing
6. Modular Fixturing

CNC TRAINING:

1. Basic CNC Machine Set Up
2. Operation of CNC Mill
3. Operation of CNC Machining Center
4. Operation of CNC Lathe
5. Fundamentals of CNC Programming
6. Data Input via Computer
7. Developing Mill Programs
8. Developing Lathe Programs
9. Prove Out Programs

## CNC OPERATION COURSE

PREREQUISITES:

* High School Graduate or GED equivalent
* Being proficient in General Math (Algebra, Geometry, and Trigonometry desirable.)
* Being proficient in reading Blueprints and Precision Measuring Instruments
* Minimum of two years setting up and running chip-producing machinery or the successful completion of a comprehensive machine shop training course
* Completion of the Differential Aptitude Test

LENGTH OF TRAINING: 240 Hrs. (8 wks) Skill Training
90 Hrs. (3 wks) Job Search Assistance

CLASS HOURS: 8:00 A.M. to 4:15 P.M.
Tuesday through Friday

TRAINING SITE: HARRY T. KERR SKILLS CENTER
Titusville Industrial Park
McKinney Street
Titusville, PA 16354
1 (800) 352-0034 or (814) 827-1802

EMPLOYMENT OPPORTUNITIES:

* NC or CNC Operator
* CNC Lathe, Mill and/or Machining Center Operator

CURRICULUM OUTLINE:

| SUBJECT | HOURS |
|---|---|
| Study Skills | 12 |
| Basic CNC | 8 |
| Bridgeport Mill | 62 |
| Machine Centers | 77 |
| Lathes | 81 |
| Job Seeking And Job Keeping Skills | 90 |
| Total Hours | 330 (11 Weeks) |

TUITION AND FEES:

Residents of Clarion, Crawford, Forest, Venango, or Warren Counties who are eligible for the Job Training Partnership Act attend free of charge with financial support provided by NPTPC. Tuition for other applicants is $1,247.

## CNC PROGRAMMING COURSE

PREREQUISITES:

* The successful completion of the CNC Operation Course
* The evaluation of the student's attendance record and shop performance in the CNC Operation Course
* Completion of a written and oral evaluation

LENGTH OF TRAINING: 480 Hrs. (16 weeks) Skill Training
90 Hrs. ( 3 weeks) Job Search Assistance

CLASS HOURS: 8:00 A.M. to 4:15 P.M.
Tuesday through Friday

TRAINING SITE: HARRY T. KERR SKILLS CENTER
Titusville Industrial Park
McKinney Street
Titusville, PA 16354
1 (800) 352-0034 or (814) 827-1802

EMPLOYMENT OPPORTUNITIES:

* NC or CNC Operator
* CNC Lathe, Mill and/or Machining Center Operator
* CNC Programmer, CNC Coordinator

CURRICULUM OUTLINE:

| SUBJECT | HOURS |
|---|---|
| Shop Math | 60 |
| Bridgeport Mill | 96 |
| Machine Centers | 104 |
| Lathes | 110 |
| Computer Assist Programming | 110 |
| Job Seeking And Job Keeping Skills | 90 |
| TOTAL HOURS | 570 (19 Weeks) |

TUITION AND FEES:

Residents of Clarion, Crawford, Forest, Venango, or Warren Counties who are eligible for the Job Training Partnership Act attend free of charge with financial support provided by NPTPC. Tuition for other applicants is $1,824.

# W E L C O M E

DEAR MAZAK GUEST:

WE WOULD LIKE TO WELCOME YOU TO THE MAZAK CORPORATION PROGRAMMING CLASS. WE RECOMMEND THAT YOU STAY AT THE HAMPTON INN, CONVENIENTLY LOCATED AT I-75 & TURFWAY ROAD IN FLORENCE, KENTUCKY, OR THE TRAVELODGE HOTEL LOCATED ON U.S. 42, ONLY MINUTES FROM MAZAK AND THE GREATER CINCINNATI INTERNATIONAL AIRPORT. CALL THE HAMPTON INN - CINCINNATI SOUTH TO MAKE RESERVATIONS (606) 283-1600 OR THE TRAVELODGE AT (606) 371-4700. PLEASE READ THE ATTACHED LETTERS FOR ANY ADDITIONAL INFORMATION REGARDING YOUR STAY AT THE HAMPTON OR TRAVELODGE.

BOTH HOTELS PROVIDE LIMOUSINE SERVICE TO AND FROM THE AIRPORT AND OUR TRAINING FACILITY. AIRPORT TRANSPORTATION IS AVAILABLE BY CALLING THE HOTEL FROM THE BAGGAGE AREA IN YOUR TERMINAL. INQUIRE AT THE HOTEL DESK FOR VAN SCHEDULING TO MAZAK.

WHEN MAKING RESERVATIONS, TELL THEM YOU ARE VISITING MAZAK TO RECEIVE YOUR SPECIAL RATE.

PROGRAMMING CLASSES RUN DAILY FROM 8:30 AM TO 4:30 PM, ENDING AT APPROX. 3:00 PM ON THE LAST DAY OF CLASS. LUNCH IS PROVIDED AT APPROX. 12:00 NOON IN THE TRAINING CENTER LUNCH ROOM. COFFEE IS PROVIDED FREE. VENDING MACHINES ARE ALSO AVAILABLE.

THE CLASSROOMS ARE COMFORTABLE AND WELL-EQUIPPED. PAPER AND PENS ARE PROVIDED. A PAY PHONE IS AVAILABLE.

IF YOU INTEND TO DRIVE, MAPS OF THE AREA ARE ENCLOSED.

THANK YOU FOR YOUR INTEREST.

SINCERELY,

JOE KANABROSKI
TRAINING MANAGER

JK/slb

ENCLOSURES

NOVEMBER 1, 1988

# MAZAK TRAINING POLICIES

## CUSTOMER PROGRAMMING TRAINING AT FLORENCE, KY

1. CLASS RESERVATIONS MUST BE MADE IN ADVANCE.

2. A COMPANY IS ENTITLED TO SEND TWO STUDENTS PER MACHINE ORDER DURING THE FIRST YEAR WARRANTY PERIOD. ANY ADDITIONAL STUDENTS WILL BE CHARGED AT THE CURRENT CLASS RATE.

3. ANY COMPANY SCHEDULED FOR CLASS AND FAILING TO CANCEL FIVE WORKING DAYS BEFORE THE SCHEDULED CLASS DATE WILL BE CHARGED FOR THE CLASS.

4. A COMPANY THAT PURCHASES A MACHINE THROUGH ANY OTHER SOURCE OTHER THAN THE MAZAK CORPORATION OR MAZAK DISTRIBUTOR NETWORK WILL BE CHARGED FOR THE CLASSES.

5. EXPENSES FOR HOTEL, MEALS, ENTERTAINMENT, TRANSPORTATION, ETC. ARE THE STUDENT'S RESPONSIBILITY.

6. EACH CLASS INCLUDES THE INSTRUCTION, MATERIALS, MANUALS AND DAILY LUNCHES.

7. STUDENTS RECEIVE A MAZAK DISCOUNT WHEN STAYING AT THE HAMPTON INN. (606) 283-1600. TRANSPORTATION TO AND FROM MAZAK IS PROVIDED BY THE HOTEL.

8. CLASS RATES:

| CLASS | # OF DAYS | PRICE |
|---|---|---|
| T-2 CONVERSATIONAL | 3 | $450 |
| T-3 CONVERSATIONAL | 4 | $525 |
| T2/T3 EIA/ISO | 4 | $650 |
| T-4 CONVERSATIONAL | 3 | $450 |
| T32-2 CONVERSATIONAL | 3 | $450 |
| T32-3 CONVERSATIONAL | 4 | $525 |
| T32-6 CONVERSATIONAL | 5 | $600 |
| T32 EIA/ISO | 4 | $650 |
| M2/M32 CONVERSATIONAL | 4 | $525 |
| M2/M32 3D | 3 | $450 |
| M2/M32 MACRO | 2 | $375 |
| M2/M32 EIA/ISO | 4 | $650 |
| MAZATROL EIA-T | 4 | $650 |
| FANUC EIA/ISO | 4 | $650 |
| FANUC MACRO | 2 | $375 |

TO MAKE RESERVATIONS, PLEASE CONTACT SANDY BREWSTER, TECHNICAL TRAINING SECRETARY, AT 606-727-5792.

M2/M32 PROGRAMMING CLASS
OUTLINE

FIRST DAY:

IN CLASSROOM - FILL OUT CLASS CARDS, PASS OUT CLASS BOOKS
INTRODUCTION OF ALL STUDENTS
ORIENTATION & EXPLANATION OF CLASS SCHEDULE
BRIEF TOUR OF SOUTH BUILDING.

LECTURE - BASICS OF MAZATROL CONVERSATIONAL PROGRAMMING. DETAILS OF UNIT DATA, SEQUENCE DATA AND FIGURE DATA FOR COMMON UNIT AND POINT MACHINING UNITS.

DEMONSTRATION AND EXPLANATION IN PROGRAMMING USING A CONTROL SIMULATOR.

STUDENTS DIVIDE INTO GROUPS AND WORK ON PROGRAM EXAMPLES USING CONTROL SIMULATORS.

LUNCH BREAK (FREE TIME MAY BE SPENT ON CONTROL SIMULATORS)

LECTURE - DETAILS OF UNIT DATA, SEQUENCE DATA AND FIGURE DATA FOR FACE MACHINING AND TOP END MILL UNITS. EXPLANATION OF TOOL FILE, TOOL LAYOUT AND GRAPHIC SCREENS.

STUDENTS DIVIDE INTO GROUPS AND WORK ON PROGRAM EXAMPLE USING CONTROL SIMULATORS.

CLASS ENDS WITH QUESTION AND ANSWER PERIOD.

SECOND DAY:

LECTURE - DETAILS OF UNIT DATA, SEQUENCE DATA AND FIGURE DATA FOR LINE OUT, LINE IN, CHAMFER OUT AND CHAMFER IN UNITS.

STUDENTS DIVIDE INTO GROUPS AND WORK ON PROGRAM EXAMPLES USING CONTROL SIMULATORS.

LUNCH BREAK - (FREE TIME MAY BE SPENT ON SIMULATORS)

LECTURE - DETAILS OF UNIT DATA, SEQUENCE DATA AND FIGURE DATA FOR LINE CENTER, LINE LEFT, LINE RIGHT, CHAMFER LEFT, CHAMFER RIGHT UNITS.

EXPLANATION OF ARBITRARY GEOMETRY PROGRAMMING.

STUDENTS DIVIDE INTO GROUPS AND WORK ON PROGRAM EXAMPLES USING CONTROL SIMULATORS.

EXPLANATION ON ARBITRARY GEOMETRY CONTINUES AS STUDENTS USE CONTROL SIMULATORS.

CLASS ENDS WITH QUESTION AND ANSWER PERIOD.

THIRD DAY:

LECTURE - DETAILS OF UNIT DATA, SEQUENCE DATA AND FIGURE DATA FOR STEP MACHINING, POCKET MACHINING, POCKET MOUNTAIN, POCKET VALLEY AND SLOT UNITS.

STUDENTS DIVIDE INTO GROUPS AND WORK ON PROGRAM EXAMPLES USING CONTROL SIMULATORS.

LUNCH BREAK - (FREE TIME MAY BE SPENT ON CONTROL SIMULATOR)

LECTURE - DETAILS OF MULTI-MODE FUNCTION WITH USE OF SUB PROGRAM AND DETAILS OF END UNIT.

STUDENTS DIVIDE INTO GROUPS AND WORK ON PROGRAM EXAMPLES USING CONTROL SIMULATORS.
CLASS ENDS WITH A QUESTION AND ANSWER PERIOD.
HAND OUT INFORMATION BOOK CONTAINING MORE PROGRAMMING FUNCTIONS AND PARAMETER LISTINGS.

FOURTH DAY:

LECTURE - DETAILS OF UNIT DATA FOR PROCESS END, M-CODE, SUB PROGRAM, PALLET INDEX, PALLET CHANGE ETC. WPC AND OFF SET UNITS. USE OF SUB PROGRAMS AND OFFSET UNITS. DETAILS OF MANUAL PROGRAM UNIT.

STUDENTS DIVIDE INTO GROUPS AND WORK ON PROGRAM EXAMPLES USING CONTROL SIMULATORS.

LUNCH BREAK - (FREE TIME MAY BE SPENT ON CONTROL SIMULATORS)

BRIEF TOUR OF NORTH BUILDING.

QUESTION AND ANSWER PERIOD.

STUDENTS DIVIDE INTO GROUPS AND WORK ON PROGRAM EXAMPLES USING CONTROL SIMULATORS.

CERTIFICATES FOR CLASS ARE AWARDED.

CLASS ENDS WITH FINAL QUESTION AND ANSWER PERIOD.

M2/M32 3D PROGRAMMING CLASS
OUTLINE

(PREREQUISITE)
M2/M32 CONVERSATIONAL PROGRAMMING

FIRST DAY:

IN CLASSROOM - FILL OUT CLASS CARDS, PASS OUT CLASS BOOK, INTRODUCTION OF ALL STUDENTS, ORIENTATION AND EXPLANATION OF CLASS SCHEDULE, BRIEF TOUR OF SOUTH BUILDING.

LECTURE - BASICS OF MAZATROL 3D PROGRAMMING.

DETAILS OF UNIT DATA, SEQUENCE DATA AND FIGURE DATA FOR ROTATE MACHINING UNITS.

DEMONSTRATION AND EXPLANATION IN PROGRAMMING USING A CONTROL SIMULATOR.

LUNCH BREAK (FREE TIME MAY BE SPENT ON SIMULATORS)

LECTURE - DETAILS OF UNIT DATA, SEQUENCE DATA AND FIGURE DATA FOR PARALLEL MACHINING UNITS.

STUDENTS DIVIDE INTO GROUPS AND WORK ON PROGRAM EXAMPLE USING CONTROL SIMULATORS. EXPLANATION OF TOOL FILE, TOOL LAYOUT, AND GRAPHIC SCREENS CONTINUES WHILE STUDENTS USE CONTROL SIMULATORS.

CLASS ENDS WITH QUESTION AND ANSWER PERIOD.

SECOND DAY:

LECTURE - DETAILS OF UNIT DATA, SEQUENCE DATA, & FIGURE DATA FOR NORMAL MACHINING UNITS.

STUDENTS DIVIDE INTO GROUPS AND WORK ON PROGRAM EXAMPLES USING CONTROL SIMULATORS.

LUNCH BREAK (FREE TIME MAY BE SPENT ON CONTROL SIMULATORS)

LECTURE - DETAILS OF UNIT DATA, SEQUENCE DATA, AND FIGURE DATA FOR RULED SURFACE MACHINING UNITS.

STUDENTS DIVIDE INTO GROUPS AND WORK ON PROGRAM EXAMPLES USING CONTROL SIMULATORS.

CLASS ENDS WITH QUESTION AND ANSWER PERIOD.

THIRD DAY:

LECTURE - DETAILS OF COMBINED PROGRAMMING USING 3D MACHINING UNITS.

STUDENTS DIVIDE INTO GROUPS AND WORK ON PROGRAM EXAMPLES USING CONTROL SIMULATORS.

LUNCH BREAK (FREE TIME MAY BE SPENT ON CONTROL SIMULATORS)

QUESTION AND ANSWER PERIOD.

BRIEF TOUR OF NORTH BUILDING

STUDENTS DIVIDE INTO GROUPS AND WORK ON PROGRAM EXAMPLES USING CONTROL SIMULATORS.

CERTIFICATES FOR CLASS ARE AWARDED. STUDENTS ARE FREE TO LEAVE OR REMAIN AND WORK USING CONTROL SIMULATORS.

CLASS ENDS WITH FINAL QUESTION AND ANSWER PERIOD.

# ELECTRICAL COURSE OBJECTIVES

## Electricity I (Basic DC)

Basic introduction to electricity. Understanding basic direct current theories, formulas, and circuits. Theory and formulas will be reinforced with 40 percent of actual hands-on experience. This experience will include the use of test equipment to analyze the circuits.

## Electricity II (Industrial DC)

To relate theories, formulas, and circuits learned in basic DC to the industrial work place.

This course will begin with basic DC print reading and move on to cover DC generation, DC crane controls, DC control boards, basic understanding of DC motors. Hands-on experience and use of test equipment will be approximately 40 percent of the course.

## Electricity III (Basic AC)

To learn basic theories, formulas and circuits used with alternating current. Differences between AC and DC. Understanding single and three phase AC circuits. Basic understanding of transformers. Use of test equipment and hands-on experience will be at least 30 percent of the course.

## Electricity IV (Industrial AC)

To apply knowledge gained in basic AC course to an industrial environment. This course will cover single and three phase transformers, various transformer connections, step up and step down transformers. It will also cover small AC motors, MG sets, AC switching, and high voltage. Approximately 30 percent of this course will be electrical print reading and hands-on experience.

## Electricity V (Electrical Equipment Troubleshooting)

To teach logical troubleshooting techniques in an industrial environment. This course will contain 70 to 80 percent of hands-on experience and electrical print reading.

## Electricity VI (Solid State Components)

To understand the basic theory of solid state components. The purpose of these components, simple field checks to locate bad components, understanding a block diagram of a DC motor drive and trouble shooting these blocks. This course will contain 25 to 30 percent hands-on instruction.

RMET601701

## 10. REGISTRATION OF ADULT STUDENTS

Adult students who enrolled in each high-tech training program completed a registration form which served several purposes beyond providing information for class attendance rosters. These forms were used to accomplish the following goals:

- o Determine location of training sites and times for delivering instruction.
- o Project class size.
- o Establish the number of classes that would be needed in each high-tech area.
- o Project quantities of textbooks, workbooks, and supplies that would be needed for instruction.
- o Determine instructional costs.
- o Determine lab space and equipment needs.
- o Maintain a record of industries being served.
- o Collect demographic information on adult students served by the project.
- o Build a data base for planning future training programs.
- o Determine level of support from industrial personnel managers.
- o Determine how adults would benefit from training at their jobs.
- o Collect data on the kinds of jobs being performed in industry in the six-county area served by the project.
- o Build a data base to justify requests for future funding from state and federal funding agencies.

Registration forms were collected by the project director or the adult education/industry education coordinators at individual training sites. A sample of each of the two registration forms used for the project are shown on the following pages.

A COOPERATIVE DEMONSTRATION PROGRAM FOR TECHNICAL TRAINING
IN THE PRIVATE SECTOR IN NORTHWESTERN PENNSYLVANIA

Sponsored by:
United States Office of Vocational and Adult Education
and
The Vocational Center at Indiana University of Pennsylvania

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STUDENT REGISTRATION FORM - Please Print

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PART ONE

Your name_____County of Residence _____

Your home address_____
street or box# town or city

Your Employer's or Company's Name _____
Employer / Company address _____
town or city

Product(s) manufactured by employer _____

What is your current job title?_____

What are your job responsibilities or duties? _____

PART TWO

Directions: Answer the following questions by marking an X in the space.

Sex: Male ( ) Female ( )

Age Group: 18-25 ( ) 26-30 ( ) 31-35 ( ) 35-40 ( ) over 40 ( )

Years employed with company: 0-5 ( ) 6-10 ( ) 11-15 ( ) over 15 ( )

PART THREE

Directions: Answer the following questions by printing your answers in the spaces provided. Please print.

Please print the name of the kind of training you would like to have.

_____

Explain how this training will help you upgrade your present job responsibilities or duties. Please be specific in your answer._____

_____

_____

_____

## LIST OF TRAINING COURSES, LOCATIONS & INDUSTRIES

Indiana and Armstrong Counties
Training Organization: Indiana County AVTS

Industries Served:

1. Barr Mine Repair, Inc., Commodore
2. Biocontrol Technology, Inc., Indiana
3. Blairsville Machine Products Co., Blairsville
4. C.T.I., Inc., Indiana
5. Fisher Scientific Co., Indiana
6. HMS Industries, Inc., Indiana
7. Indiana Tool and Die Co., Indiana
8. McCreary Tire and Rubber Co., Indiana
9. Metals Conversion Inc., Blairsville
10. National Mine Service Co., Indiana
11. Ocenco Inc., Blairsville
12. PowerSafety International, Homer City
13. Precision Wire Products, Inc., Blairsville
14. Rochester and Pittsburgh Coal Company. Indiana
15. Season-All Industries, Indiana
16. Star Building Systems, Homer City

Classes with number of students registered:

Micro-soft Disk Operating System - 60
Word Processing - 48
LOTUS 123 - 50
Database - 20
Computer Aided Drafting I - 30
Computer Aided Drafting II - 20
Commercial Electronics - 20
Electronics - 24

Training Organization: Powersafety International

Industries Served:

1. Season-All Corp., Indiana
2. Morgantown Machine Company

Classes with number of students registered: Needs Assessment in Electronics and Hydraulics - 15

Butler, Lawrence, and Mercer Counties
Training Organizations: Butler County Community College
and Butler County Area Vo-Tech School

Industry Served: ARMCO

Classes with number of students registered:

Industrial Mathematics - 16
Blueprint Reading - 17
Electricity I - 5
Electricity II - 7
Electricity III - 19
Electricity IV - 11
Electricity V - 15
Electricity VI - 24
Hydraulics I - 3

Industries served:

1. ALY Construction Co., Butler
2. American Glass Research Corporation
3. Saxon Ceramics Company
4. Penn United

Classes with number of students registered: Statistical Process Control and Quality Control - 40

Industry served: American Glass Research
Classes with number of students registered:

Introduction to Micro-Soft Disk Operating System - 24
Introduction to LOTUS - 24
Introduction to DataBase - 24
Introduction to Word Processing - 24
Technical Math - 28
Blueprint Reading - 15

Training Organization: Lawrence County AVTS

Industries served:

1. Universal Rundle
2. Rockwell International

Classes with number of students registered:

DataBase Level III - 10
LOTUS 123 - 3
Electronics - 5
Computer Numerical Controlled Machine Tools - 10

Training Organization: Venango County AVTS

Industries served:

1. Windy Hill Machine Tool Company, Titusville
2. Evenflo Corporation, Oil City

Classes with number of students registered: Electronics I - 11

Training Organization: Harry T. Kerr SKills Center

Industry served: Windy Hill Machine Tool Company, Titusville

Classes with number of students registered:

Computer Numerical controlled machine tools - 9
Machine Vision (DEMO SITE PROGRAM) - 7
Programmable Controllers (DEMO SITE PROGRAM) - 7

Training Organization: Clarion County AVTS

Industry served: FRB Machine Company, Emlenton

Classes with number of students registered: Plane geometry, trigonometry, algebra - 10

TOTAL CLASSES: 33 TOTAL NUMBER OF STUDENTS: 648

12. LOTUS Recordkeeping System

Effective Date MARCH 20 1990

NORTHWESTERN PENNSYLVANIA COOPERATIVE DEMONSTRATION PROGRAM
OPERATION PERIOD------JANUARY, 1989 THROUGH JUNE 30, 1990 '[(Extension granted (date_____,1990)]
ACCOUNTING WORKSHEET

INDIANA AND ARMSTRONG COUNTY TRAINING PROGRAMS

| | NUMBER CLASSES | PROGRAM SUPPLY | TEACHER/ TRAINERS | CONSULT. PRIVATE | EQUIP. RENTAL | LAB RENTAL | TOTALS | STUDENTS SERVED | GRAND TOTALS |
|---|---|---|---|---|---|---|---|---|---|
| VENDOR 1 | | | | | | | | | |
| Indiana County Area Vocational-Technical School | | | | | | | | | |
| Industries served: Barr Mine Repair - Biocontrol Tech - Blairsville Machine Tech - CTI, Inc. - Electro-Mec, Inc. Fisher Scientific - HMS Industries - Indiana Tool & Die - McCreary Tire - Metals Conversion, Inc.- National Mine Ocenco Inc. - Precision Wire Products - R & P Coal - Season-All Industries - Star Building Systems | | | | | | | | | |
| MS DOS | 6 | 1500 | 2400 | 0 | 1200 | 600 | 5700 | 60 | |
| Word Processing | 4 | 1000 | 1600 | 0 | 800 | 400 | 3800 | 40 | |
| lotus123 | 5 | 2250 | 3000 | 0 | 1500 | 500 | 7250 | 50 | |
| database | 2 | 980 | 1200 | 0 | 600 | 200 | 2980 | 20 | |
| CAD autosketch | 3 | 1050 | 3600 | 0 | 2700 | 300 | 7650 | 30 | |
| CAD autocad | 2 | 900 | 2400 | 0 | 2200 | 200 | 5700 | 20 | |
| Comm.Elec. | 1 | 1300 | 1600 | 0 | 800 | 100 | 3800 | 20 | |
| electronics | 2 | 400 | 2400 | 0 | 2000 | 200 | 5000 | 24 | |
| | | | | | | | TOTALS-INDIANA CO.AVTS | | 41880 |
| Vendor-2 | | | | | | | | | |
| Power Safety International of Homer City, PA | | | | | | | | | |
| Season All Elec. | 1 | 563 | 563 | 0 | 563 | 563 | 2252 | 5 | |
| Season All Hyd. | 1 | 563 | 563 | 0 | 563 | 563 | 2252 | 5 | |
| Morgantown Elec. | 1 | 563 | 563 | 0 | 563 | 563 | 2252 | 5 | |
| Morgantown Hyd. | 1 | 563 | 563 | 0 | 563 | 563 | 2252 | 10 | |
| | | | | | | | TOTALS-POWER SAFETY INT. | | 9008 |

BUTLER - LAWRENCE - MERCER COUNTY TRAINING PROGRAMS

| | NUMBER CLASSES | PROGRAM SUPPLY | TEACHER/ TRAINERS | CONSULT PRIVATE | EQUIP RENTAL | LAB. RENTAL | TOTALS | STUDENTS SERVED |
|---|---|---|---|---|---|---|---|---|
| Vendor 1 - Butler County Community College | | | | | | | | |
| Industry to be served: ARMCO | | | | | | | | |
| Intro Math | 1 | 50 | 818 | 0 | 0 | 0 | 868 | 16 |
| Blueprint Reading | 1 | 50 | 818 | 0 | 0 | 0 | 868 | 17 |
| Electric I | 1 | 50 | 818 | 0 | 0 | 0 | 868 | 5 |
| Electric II | 1 | 50 | 818 | 0 | 0 | 0 | 868 | 7 |
| Electric III | 1 | 50 | 818 | 0 | 0 | 0 | 868 | 9 |
| Electric III-A | 1 | 50 | 818 | 0 | 0 | 0 | 868 | 10 |
| Electric IV-A | 1 | 50 | 818 | 0 | 0 | 0 | 868 | 6 |
| Electric IV-B | 1 | 50 | 818 | 0 | 0 | 0 | 868 | 5 |
| Electric V-A | 1 | 50 | 818 | 0 | 0 | 0 | 868 | 14 |
| Electric V-B | 1 | 50 | 818 | 0 | 0 | 0 | 868 | 1 |
| Electric VI-A | 1 | 50 | 818 | 0 | 0 | 0 | 868 | 14 |
| Electric VI-B | 1 | 50 | 818 | 0 | 0 | 0 | 868 | 6 |

Quality Control / SPC - Industries served

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| [redacted]construct. | 1 | 100 | 1220 | 0 | 0 | 0 | 1320 | 8 | |
| Pitt Plug Co. | 1 | 100 | 1220 | 0 | 0 | 0 | 1320 | 8 | |
| [redacted] United | 1 | 100 | 1220 | 0 | 0 | 0 | 1320 | 8 | |
| [redacted]n Ceram. | 1 | 100 | 1220 | 0 | 0 | 0 | 1320 | 8 | |
| [redacted] 6l.Res. | 1 | 100 | 1220 | 0 | 0 | 0 | 1320 | 8 | |
| | | | | | | | | | TOTALS-BUTLER/QUALITY 6600 |

[redacted]board Skill Updates
[redacted]stry to be Served: ServiceStar Corp.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| [redacted]o.to DOS | 2 | 200 | 650 | 0 | 0 | 0 | 850 | 24 | |
| [redacted]o.to Lotus | 2 | 200 | 650 | 0 | 0 | 0 | 850 | | |
| Intro.to D-base | 2 | 200 | 650 | 0 | 0 | 0 | 850 | | |
| [redacted]o.to WP | 2 | 200 | 650 | 0 | 0 | 0 | 850 | | |
| | | | | | | | | | TOTALS-BUTLER/SERVICESTAR 3400 |

Industry served: American 6lass Research

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| B[redacted]print Reading | 1 | 600 | 1200 | 0 | 0 | 0 | 1800 | 15 | |
| | | | | | | | | | TOTALS-BUTLER/AMER.6L.RES. 1800 |

Industry served: Saxonburg Ceramics

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| K[redacted] Tech Update | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spray Dryer | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | | | | | | | | TOTALS-SAXONBURG CERAM. 0 |

Vendor: Butler County AVTS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| I[redacted] space for BC3 | 0 | 0 | 0 | 0 | 1200 | 1200 | 2400 | 0 | TOTALS-BUTLER CO. AVTS 2400 |

Ve[redacted]dor #2 - Lawrence County Area Vocational-Technical School
Industry Served: Universal Rundle

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D[redacted]base III | 1 | 334 | 750 | 0 | 500 | 500 | 2084 | 10 | |
| Lotus 123 | 2 | 334 | 1350 | 0 | 500 | 500 | 2684 | 3 | |
| | | | | | | | | | TOTALS-LAWRENCE CO. AVTS 4768 |

Ve[redacted]dor #2 - Lawrence County AVTS

Industry Served: Rockwell

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Electronics | 1 | 334 | 1350 | 0 | 500 | 500 | 2684 | 10 | |
| CNC (12 wks) | 1 | 334 | 3330 | 0 | 500 | 500 | 4664 | 10 | |
| | | | | | | | | | TOTALS-LAWRENCE CO. AVTS 7348 |

`(includes teachers)

VENANGO COUNTY TRAINING PROGRAMS

| | NUMBER CLASSES | PROGRAM SUPPLY | TEACHER/ TRAINERS | CONSULT. PRIVATE | EQUIP. RENTAL | LAB RENTAL | TOTALS | STUDENTS SERVED |
|---|---|---|---|---|---|---|---|---|

Ve[redacted]dor #1 - Venango County Area Vocational-Technical School

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| `2nd. text purchas | 0 | 900 | 0 | 0 | 0 | 0 | -900 | | |
| | | | | | | | | TOTALS-VENANGO CO. AVTS | 4105 |
| LIBERTY ELECTRONICS | | | | | | | | | |
| Cable Harness | | | | | | | | | |
| Co[illegible].Training | 2 | 3000 | 4300 | 0 | 1500 | 0 | 8800 | 20 | |
| | | | | | | | | TOTALS-LIBERTY ELECTRON. | 8800 |
| Ve[illegible]r # 2 - Harry T. Kerr Skills Center, Titusville, PA | | | | | | | | | |
| CN[illegible]class for | | | | | | | | | |
| Wi[illegible] Hill Co. | 1 | 1970 | 1440 | 450 | 972 | 144 | 4976 | 9 | |
| Videotape development | | | | | 800 | | 800 | | |
| | | | | | | | | TOTALS-H.T.KERR SKILLS CNTR | 5776 |
| Vendor #3 - MAZAK training center, Florence, Kentucky | | | | | | | | | |
| Conversational Cntrl. | | | | | | | | | |
| `([illegible]student) | | | | | | | | | |
| `3-[illegible]men.program. | 1 | 263 | 263 | | 0 | 0 | 600 | 1 | |
| `(2 students) | | | | | | | | | |
| Th[illegible]-D progam | 1 | 450 | 450 | | 0 | 0 | 900 | 2 | |
| t[illegible] students | | | | | | | | | |
| | | | | | | | | TOTALS-MAZAK IN KENTUCKY | 1500 |
| Ve[illegible]r #4 - Clarion County Area Vocational Technical School | | | | | | | | | |
| Mathematics class for FRB Machine Company Employees - Emlenton, PA | | | | | | | | | |
| Al[illegible]ra/Trigonomet | 1 | 250 | 2040 | 0 | 0 | 274 | 2564 | 10 | |
| | | | | | | | | TOTALS-CLARION CO. AVTS | 2564 |
| | | | | | | | | `(Teacher+Program) | |
| Ve[illegible]r #5 6TE Corporation of Erie, PA | | | | | | | | | |
| On[illegible]day Training Seminar ( 2 classes) - at H.T. Kerr Skills Center | | | | | | | | | |
| Machine Vision | 1 | 25 | 20 | 20 | 35 | 100 | 200 | 10 | |
| Pr[illegible]rammable Contr | 1 | 25 | 35 | 35 | 20 | 20 | 135 | 10 | |
| | | | | | | | | TOTALS-H.T.KERR/6.T.E. | 335 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| TOTALS FROM ALL | | | | | | | | | |
| PR[illegible]RAMS | 71 | 23501 | 58757 | 505 | 20579 | 9020 | 112436 | 591 Students served | 112436 |
| | TOTAL CLASSES | PROGRAM SUPPLY | TEACHER/ TRAINERS | PRIVATE CONSULT | EQUIP RENTAL | LAB. RENTAL | GRAND TOTAL | | |

FUNDS AVAILABLE FROM FEDERAL 6RANT # V199A90089

| | FUNDS ALLOTTED | EXPENDITURES TO DATE | BALANCE TO DATE | Arith.Adj. Work Column | BALANCE BY CATE6ORY | |
|---|---|---|---|---|---|---|
| CO[illegible]DINATOR | 28000 | ????????? | ????????? | 0 | ????????? | Coordinator |
| C=TRAVEL | 2900 | ????????? | ????????? | 0 | ????????? | Travel |
| D=SUPPLIES | 17000 | 23501 | -6501 | 7476 | 0 | Supplies |
| E=[illegible]STRUCTORS | 67500 | 58757 | 8743 | 0 | 8743 | Instructors |
| F=[illegible]IVATE CONSULT | 7500 | 505 | 6995 | -6140 | 855 | Private Consult |
| 6=ARTIST | 2000 | 0 | 2000 | 0 | 2000 | Artist |
| H=[illegible]OTO6RAPHER | 2000 | 0 | 2000 | 0 | 2000 | Photographer |
| I=[illegible]UIP.RENT | 18065 | 20579 | -2514 | 1859 | 0 | Equipment Rent. |
| J=LAB RENT | 18065 | 9020 | 9045 | -3069 | 5976 | Lab Rent |
| K=COMMUNICATIONS | 5600 | ????????? | ????????? | 0 | ????????? | Communications |
| L=[illegible]NTIN6 | 6000 | ????????? | ????????? | 0 | ????????? | Printing |

13. Correspondence

UNITED STATES DEPARTMENT OF EDUCATION
WASHINGTON, D.C. 20202

V199A90089-
Indiana Univ. of Pennsylvania
Vocational Personnel Preparation
Reschini House
Indiana, PA 15705

199A

Dear Recipient:

Congratulations on your grant award from the U.S. Department of Education under the Cooperative Demonstration Program for High Technology Training. To ensure the best possible communication between our offices, we would like to direct your attention to several areas involving the administration of the grant that you will want to review in detail at this time. The enclosed Grant Award Notification includes information with which you will need to become familiar.

Information relating to contact persons responsible for the grant can be found in Block 3 of the Notification. For your convenience, we have included their telephone numbers. The Education Program Staff contact person is the Project Officer responsible for monitoring activities and addressing programmatic issues arising under the grant. The Education Grants Staff contact person is the Grants Specialist responsible for overseeing the administrative and business-management concerns of the grant. All reports and requests for programmatic and budget revisions must be addressed to the Grants Office.

You will need to review and become familiar with both the program regulations and Education Department General Administrative Regulations (EDGAR) cited in Block 7. For information on payment procedures and reporting requirements and other special terms and conditions, please see the attachments referenced in Block 7. In Block 9, you will find additional important information relating to the terms and conditions of the grant. All terms and conditions continue in effect through the project period or until modified or rescinded by the Grants Officer.

It is important to remember that in all communications with the Department of Education you will need to provide us with the PR/AWARD NUMBER found in Block 4. This identifier will facilitate our service to you.

Again, congratulations on your selection for a U.S. Department of Education grant. We look forward to a good working relationship with you and your organization.

Sincerely,

Franklin Reid
Grants Specialist
Research & Demonstration Branch
Grants Division
Grants and Contracts Service

Enclosures

WAUBONSEE COMMUNITY COLLEGE • BUSINESS AND INDUSTRY INSTITUTE

Aurora Campus
5 East Galena Blvd.
Aurora, Illinois 60505
312-892-3334

March 8, 1989

Dear Fellow Grantee:

Our meeting in Washington last week was very interesting and productive for me. I was especially pleased to meet all of you and compare ideas. Our round table discussion opened up many problems and questions for all of us, but the consensus at our table was that we would like to share some answers to some of the issues raised as well as have more participation among the Grantees in general.

Perhaps it would be helpful to have a monthly letter sharing successful ideas as well as concerns.

If you would like to call or drop a short note to me by the 15th of each month, I will compile all of your concerns, questions and answers and mail a copy of this kind of give and take feedback to each of you each month. I will mail a copy to our program officers so that the Department is aware of what our questions and answers are about, and perhaps they might have time to participate once in a while.

This will not be a formal or time consuming project as I am sure none of us have that kind of time available. However, if you feel it would be helpful to you for me to compile this information, I will be happy on a monthly basis to mail any information I have received to each of you.

Please let me hear from you as to whether you think this is an acceptable or unacceptable idea. I look forward to hearing from you.

Best of luck on your project!

Sincerely,

Ann Dermody

Ann Dermody
Office Skills
Program Director

Telephone: 312-892-3334 Work
312-420-2661 Home

# MEMORANDUM

UNITED STATES DEPARTMENT OF EDUCATION
WASHINGTON, D.C. 20202

APR 20 19[illegible]

TO : Project Directors
Cooperative Demonstration Program (High Technology)

FROM : Rich DiCola & Bob Miller
Project Officers

SUBJECT: Attending/Presenting at the Annual Meeting of the American Vocational Association (AVA)

At our Project Directors' workshop last month, mention was made of attending the Annual Meeting of AVA in Orlando in December. For those of you who are planning to attend this conference but may have missed the deadlines for other opportunities or invitations to make a presentation while you're in Orlando, attached is a copy of a "Call for Proposals" from AVA's General & Related Subjects Section. Although you might have to work quickly to meet their deadline of May 9, we thought we'd at least you know about this opportunity.

As the descriptions of the types of presentations suggest, the "carousel" format is probably more suitable for one or two persons to talk about a project, while a "sectional" could focus on one or more related projects. If you met someone you think might make a good co-presenter at our workshop, now might be a good time to give that person a call.

Please note that although we're passing this information on to you, neither of us is taking any part in the proposal review or decision-making process. Nor are we encouraging you to forego any other presentation opportunities you might have from other AVA divisions of sections.

For those of you not planning to attend AVA, we will be happy to pass along information about other national meetings and presentation opportunities as we receive it ourselves.

Finally, we're also putting in this envelope a couple of other items that have come across our desks over the past few days.

Talk to you soon!

Rich DiCola
Bob Miller

Attachments

May 21, 1990

Inside address
_____
_____
_____
_____

Dear _____:

On May 9,10, and 11, Mr. Peter Bateman and Ms. Lana Muraskin, from the U. S. Office of Education's Bureau of Adult and Vocational Education, evaluated IUP's Cooperative Demonstration Training programs. It may interest you to know that, before departing for their Washington offices on Friday afternoon, Mr. Bateman and Ms. Muraskin congratulated all of us for "working so hard to develop such fine high-tech training programs for western Pennsylvania!"

I am certain that such positive comments were made as a result of your teaching expertise, and ability to work with adult learners from business and industry. Thus, you deserve much of the credit for making our training programs effective.

I would like to extend my personal thank you for helping to make our cooperative high-tech training programs a success.

Sincerely,

Michael Spewock
Project Director



86

EvalThan.KS3
EvalThan.SE3

May 21, 1990

Inside Address
_____
_____
_____
_____

Dear _____:

I would like to thank you for taking time from your busy schedule to meet with Peter Bateman and Lana Muraskin, the evaluators who reviewed IUP's Cooperative Demonstration Training Program that is being funded by the U.S. Office of Education.

It may interest you to know that, before departing for their Washington offices on Friday afternoon, Mr. Bateman and Ms. Muraskin congratulated us for "working so hard to develop such fine high-tech training programs in western Pennsylvania!"

I feel that the success of our training programs has been due, in large part, to the cooperation that you have given us as a representative of Pennsylvania's manufacturing industry. I hope we can continue to work together in the future as high tech training continues to be an important part of both industry and education in the Commonwealth.

Sincerely,

Michael Spewock
Project Director



letagend. mas
letagend. sec

Center for Vocational Personnel Preparation
Indiana University of Pennsylvania
Beaver House
Indiana, Pennsylvania 15705-1087

FAX: 357-4424

IUP

April 19, 1990

Ms. Barbara Saunders
Grants Management Specialist
U.S. Department of Education
Research and Demonstration Branch
400 Maryland Avenue, S.W.
ROB-3 Room 3642
Washington, DC 20202-3845

Dear Ms. Saunders,

I am writing to request an extension for our project entitled, A Cooperative Demonstration Project for Employees of Manufacturing Industries in Northwestern Pennsylvania, Federal Grant #V199A90089.

I am pleased to report that our training programs in high-tech areas have been very successful with people who are attempting to upgrade their jobs or learn new skills in industries in western Pennsylvania. To date, we have been able to register more than 600 employees in training programs such as computer assisted drafting and design, computer-numerical fluid power, statistical process quality control, higher-level mathematics, and electronics.

While many industries in our project area were able to schedule their workers into our fall and spring training seminars, many factories will not be able to release their employees until the summer season--a time of slow production. I would like to request permission, therefore, to extend our training programs beyond the end of this fiscal year (June 30, 1990) so that a maximum number of manufacturing employees can take advantage of training. I feel that we should be able to accomplish this goal by the end of August, 1990.

Our summer programs will operate in western Pennsylvania's county vocational-technical schools, at private technical training centers, and on-site in factories which have installed high-tech equipment. We hope that you will agree to permit us to continue these exciting and important educational workshops.

Please allow me to thank you in advance for considering my request. I will look forward to hearing from you.

Sincerely,

Michael Spewock

Michael Spewock, Ed.D.
Federal Grant Project Co-director

cc: Richard DiCola, Federal Project Supervisor

## 14. DESIGNING PROGRAM AGENDAS

Each adult student who enrolled in a high-tech training program was given an agenda of activities at the beginning of each course. The format for agendas followed the style used by staff members of IUP's Center for Vocational Personnel Preparation in their summer vocational teacher updating workshops. Experience of Center staff with teacher training workshops and seminars helped them refine the agendas so that the information needs of students was better understood, their physical comfort was taken into consideration, and the classroom/ laboratory environment was conducive to effective learning.

The standard agenda format would resemble the example on the following page.

## 15. OUTREACH SYSTEMS AND INFORMATION NETWORKS

The directors of the federal grant assumed that the information network would consist of three components: telephones, office computers, and (where available) facsimile (FAX) machines. The reason for developing an electronic information network or "outreach" system was based on the need for IUP staff to communicate quickly with vocational school administrators as soon as training program requests from industry were received at the university.

Electronic mail made it possible for school administrators and IUP personnel to communicate quickly and efficiently. The telephone and office computer permitted the use of an electronic "bulletin board" and allowed vocational school administrators and IUP faculty to "upload" and "download" documents such as memoranda of agreement, spreadsheets showing costs for purchase orders, and sample curricula. Field resource persons operating from home offices also used the bulletin board to communicate with Mr. O'Brien and Dr. Spewock at IUP.

The electronic mail system relied on IUP's mainframe computer to process information arriving from the field. Operator A would initiate a message by typing a document on a floppy disk using a "public domain" word processing program called PC WRITE. A copy of this program has been included in this section of the process manual. The document would then be uploaded to the mainframe by operator A, using instructions for IUP's electronic mail system. A copy of the electronic mail instruction book has also been included in this section. Operator A would then send a message to Operator B via the electronic bulletin board, telling her that a document was waiting in her "electronic mailbox" to be retrieved upon her command.

Operator B would download the document at her convenience--sometimes immediately but, more often, at her home computer in the evening. Operator B would read the bulletin board message, download the document sent to her by operator A, then plan to process it the following day. If a response to operator A was required, Operator B would place her comments on the electronic bulletin board for Operator A to retrieve at her convenience. In this way, quick communications could be made between and among the project directors at IUP, field staff, the vocational school system in northwestern Pennsylvania, and, on occasion by personnel directors in private industry.

FAX machines proved to be an even better method of communication between managers who participated in the federal cooperative demonstration project. The advantage of the FAX process is that it does not require operators to learn a complicated word-processing program or the instructions involved in using electronic mail. At this point, however, FAX machines are not available in vocational schools and in only a few small industries in western Pennsylvania. The convenience they offer, however, will certainly make them as popular as personal computers and office copiers in the near future. If this is the case, administrators in a project such as this one would be able to communicate better by FAX than by either computer or telephone.

# PC WRITE
# WORD PROCESSING
# GUIDE

# CREATING WRITTEN DOCUMENTS ON THE COMPUTER
# WITH
# PC WRITE

## USER'S QUICK GUIDE AND TUTORIAL

*Developed from the PC Write Tutorial Version 2.7 for the Center for Vocational Personnel Preparation's 1987-1988 Electronic College Project - Funded through a grant from the Bureau of Vocational Education, PA Department of Education*

# PC-Write Tutorial

Version 2.7

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Quicksoft, 219 First N #224, Seattle, WA 98109. 206/282-0452.

By following the instructions in these lessons, you will learn how to use the PC-Write word processor. Although the lessons don't cover every aspect of the program, they will provide you with a good working knowledge of PC-Write. In this tutorial you will learn the basics of:

- Making a working diskette.
- Creating a file.
- Entering text.
- Saving and exiting.
- Loading an existing file.
- Moving around the screen.
- Changing text.
- Changing margins.
- Copying, moving, and deleting text.
- Finding and replacing text.
- Using Help screens and menus.
- Printing.

To get the most out of this tutorial, you should be familiar with your computer and with DOS. If your knowledge of these areas is sketchy, please read "Introduction to Computers and DOS" in the PC-Write User's Guide, and look through your DOS manual. The PC-Write User's Guide gives detailed explanations of all PC-Write commands. Refer to it if you need more information. As you become an advanced PC-Write user, you'll discover powerful word processing techniques not covered in this tutorial.

The PC-Write program disk contains two programs: the edit program and the print program. The edit program lets you create a file, enter text into it, change and format the text, and enter special commands for page layout and font control. The print program lets you print the file, interpreting page layout and font commands.

The instructions in this tutorial are for a computer with two disk drives. If your computer has only one disk drive, just change diskettes when your computer tells you to. If you have a hard disk, you can do this tutorial with your floppy disk drive. If you want to use your hard disk, you can modify the instructions as appropriate (use "C:" and a subdirectory name instead of "B:", for example).

Now you're ready to start. If you haven't done so already, boot your computer with DOS. Place your DOS diskette in drive A (the left or top disk drive) and turn on the computer. Enter the date and time if you are asked to. When the computer is ready, a DOS prompt will appear on the screen. The DOS prompt looks like this: A>

At the DOS prompt, you can type DOS commands (you'll learn some of these in the lessons) and the commands to start the PC-Write edit program and print program. The notation <Enter> means that you should press the Enter key (also called the Return key) after you type the command. You can type DOS or PC-Write commands in upper or lower case, or a mixture; it makes no difference. If you are asked to type text that is shown in quote marks, type the text but not the quote marks. The Esc key is the universal cancel key; use it cancel PC-Write commands

## Lesson 1: Making a Working Diskette

Now you can create a working diskette to use for everyday editing and printing. This process is only completed the first time you use the program. To create the working diskette on a floppy disk computer:

1. Place your PC-Write program diskette in drive A and a blank formatted diskette in drive B. If you don't know how to format a diskette, find the FORMAT command in "Introduction to Computers and DOS" in the PC-Write User's Guide or your DOS manual.

2. At the DOS prompt, type:
   WORKDISK B: <Enter>

   WORKDISK asks you some questions about your computer setup as you work through this process. Press "Y" for Yes or "N" for No. WORKDISK copies the following files to the working diskette:

   | | |
   |---|---|
   | ED.EXE | The edit program. |
   | PR.EXE | The print program. |
   | ED.HLP | The Help screen file. |
   | ED.DEF | The edit control file. |

3. When this process is complete you will again see the DOS prompt, A>

4. At this point, place your PC-Write working diskette just created into Drive A and another blank formatted disk in Drive B.

Lesson 2: Creating a File

Now, let's create a file called STORY on a diskette in the B drive.

1. Now type: ED B:Story <enter>

   ED is the name of the PC-Write edit program. B: is the drive specification. This tells the edit program to create the new file on the diskette in the B drive. Now the disk drives whirr and click, and the initial PC-Write screen appears. This screen welcomes you to PC-Write and tells you about our shareware philosophy.

   The top line of the screen will say: File not found; esc to retry, or F9 to create "B:Story"

2. You want to create the new file STORY, so press F9. The Top Line reads:

   Esc:Menu-Push Wrap+ Sp- 99% Free. 0% Thru. Read "b:story"

The Top Line gives information about the program's activities, displays messages, and prompts you for information. Pay attention to this line as you edit.

The Top Line says "Read" even though there is no text yet. "Read" means the text on the diskette is the same as the text in the computer's memory; "Edit" means you have added or changed text. The Top Line always says "Read" when you first load a file and after you save the file (in Lesson 4 you will learn about saving).

Lesson 3: Entering Text

Now the fun starts. Enter text just as you do on a typewriter. Use the Shf keys to capitalize letters. Press the Caps Lock key to type all capital letters (notice that only the alphabetic keys are affected). If you use a Shf key when Caps Lock is on, you get lower case. Follow the steps in this lesson to see how easy entering text can be. If you press a key PC-Write is not expecting, you hear a beeping noise.

1. The cursor (a blinking block that tells you where editing will take place) is at the top of the screen. Type this sentence, just as you would on a typewriter:

   This is the story of Franz Cat and Fritzie Cat.

   Press the Enter key. The cursor will go to the beginning of the next line.

   Press the Enter key a second time to insert a blank line. Don't worry if you make typing mistakes; you'll learn to correct them later.

The PC-Write edit program lets you enter lines of text this way (one line at a time, pressing the Enter key after each line), but it also lets you enter text in a simpler fashion, using two features called wordwrap and automatic reformatting. Both let you keep on typing without pressing Enter at the end of each line. Automatic reformatting constantly reformats text as you edit it while wordwrap does not.

Look at the Top Line. It says Wrap+. This means that wordwrap is on but automatic reformatting is off. If you press Shf F7, wordwrap and automatic reformatting are on. The Top Line says Para+. Press Shf F7 again and both wordwrap and automatic reformatting are turned off. The Top Line says Wrap-.

In the next two steps, you'll be asked to type some text.

3. Press Shf F7 to turn on automatic reformatting. The Top Line should say Para+. Type the following lines without pressing the Enter key. Just keep typing and watch the words wrap to the next line. Most people get used to automatic reformatting quickly.

   Franz and Fritzie Cat lived in a small house near a shallow lake under the lip of the volcano. Every day they would waken early and step outside to smell the warm, sweet air.

   Press the Enter key twice to start a new paragraph.

4. Type the following paragraphs using automatic reformatting. Press the Enter key twice at the end of each paragraph. You'll use this story in the lessons that follow.

> One morning in particular, it doesn't really matter which one, Fritzie left the lake and the volcano and the warm, sweet air and walked to town. Her purpose was clear, her bearing direct, and her brow furrowed. "My," she growled, "this is a long way to walk to barter for computer parts. If only Franz hadn't fried the motherboard when he cooked dinner last night."
>
> When she got to town, she discovered a new travail. Ye Olde Softwaire Faire had come to town. Hackers were blocking the sidewalks, vendors were clogging the streets. But worst of all, the computer fix-it shop was closed. "Oh no," she mewed, "now I'll have to spend the night talking to Franz. He hasn't been separated from his computer in years. What will we talk about? Will I still understand him? Will he recognize me?"
>
> And back she walked to the volcano and the lake and the small house, her shoulders slumped, her step slowed. A hacker's wife's life is not an easy one.

If you hold a key down, the character will repeat until you release it. This is handy for drawing lines of dots, hyphens, or periods.

5. Press the period and hold it down to make make a row of dots. Then press the enter key twice.

## Lesson 4: Saving and Exiting

All your work up to this point is stored only in the computer's memory. None has been copied to the diskette. If you shut off your computer, all of it will be gone for good. To use the text another time, you need to save it on the diskette.

PC-Write lets you save the text and continue editing, or save and then exit the edit program returning to DOS. The saved version replaces the older version when you edit an existing file. You should save the text frequently while you edit. Then, if you accidentally kick the computer plug out of the wall, you won't lose too much work. Let's learn how to save the text to the diskette.

1. Press F1. The System/Help Menu appears on the Top Line:

   Esc F1:Help F2.Exit F3.Save F4.Command F5.Name F6:File F7:Print F8:Dir

2. Press F3, the Save option. As the edit program saves the file, the Top Line reads:

   Writing "b:story", nnnn bytes to write.

   *"nnnn" is the number of bytes (characters) in the file. PC-Write can edit files with up to about 60,000 characters (if your computer has enough memory). During normal editing, the Top Line says "nn% Free", where "nn" is the percentage of the computer's memory available for new text. When this number gets low, save the file and start entering text in a new file.*

   When PC-Write is done saving the file, the normal Top Line reappears, but it says "Read" instead of "Edit", since the text in memory is now the same as the text on the diskette. When you make a change to the text, the Top Line says "Edit" again.

Now let's see how to exit the edit program and return to DOS.

3. First press F1 to get the System/Help Menu.

4. Then press F2, the Exit option. You haven't changed anything since you last saved the file (the Top Line still says "Read"), so there's nothing new to save. If you had changed the text since the last time you saved it, the edit program would have saved the file automatically. The DOS prompt will appear; you're out of the edit program.

You don't have to save a file before you exit the edit program. If you make a mistake and don't want to save it, press the F1 key, then the F9 key and, finally, the F2 key. This takes you back to the DOS prompt and leaves the file exactly the same as when you started or last saved it.

Lesson 5: Loading an Existing File

Now let's see how to load an existing file.

1. At the DOS prompt, type:

   ED B:STORY <Enter>

   PC-Write checks for the file STORY on the diskette in the B drive. When it finds it, the Top Line says:

   Reading "b:story", nnnn bytes are free.

   ("nnnn" is the number of bytes in your computer's memory free for editing.)

When the edit program is done reading the file from the diskette into your computer's memory, the initial screen comes up and the Top Line says:
Press Esc for no backup, F9 to make backup copy "b:story.&"

At this point you can make a backup copy of the file STORY. A backup is an exact copy of the file. It protects you if you inadvertently delete your file or if it gets written to a worn spot on the diskette. It also protects you if you make an editing mistake and save the text (with the mistake) to the diskette. If you ever need to edit the backup file, treat it just like any other file. You might want to rename it first, though.

2. Press F9 to make a backup copy of STORY. This file will be called STORY.&. If a backup file already exists, the new one replaces it. While the edit program is creating the backup file, the Top Line says:
   Writing "b:story.&"

   Now the beginning of the file appears, and you are ready to edit again.

3. Press Shf F7 to turn on automatic reformatting again.

Lesson 6: Moving Around the Screen

In this lesson, you'll learn how to move the cursor around on the screen and to move to different parts of your text file.

On the far right side of the keyboard are four keys called the Arrow keys. The Up and Down Arrow keys move the cursor up and down one line at a time. The Left and Right Arrow keys move it left and right one space at a time. If you hold down an Arrow key, it repeats.

1. Experiment with the Arrow keys. Hold down the Down Arrow. The cursor moves down. Now move it up again with the Up Arrow. Do the same with the Right and Left Arrow keys.

The other keys in this lesson are also on the right side of the keyboard. Home moves the cursor to the left margin. The End moves the cursor to the end of the line just after the last character or blank on the line. *(Use shf Home and shf End on the Zenith Portable.)*

2. Move the cursor to the last line of the second paragraph. Press the Home key, hold it down and watch it move to the left margin. Now press the End key. Press the space bar 3 times, then the Home key, then End again. Watch where the cursor ends up.

The PgUp and PgDn keys scroll the text down or up by one line. To scroll by one screen of text (24 lines), press Shf PgUp or Shf PgDn.

3. Press the PgDn key and watch the text go up. Press PgUp and watch it go down. Hold them to repeat. When you are editing a file larger than this story, try Shf PgUp and Shf PgDn.

Lesson 7: More About Entering Text

The PC-Write edit program has two "modes" for entering text. A mode is the way the computer responds to certain keystrokes. The two modes are Pushright mode and Overwrite mode.

When you start editing a file, the edit program is in Pushright mode. This means that as you type new text, existing text to the right of the cursor is pushed to the right.

1. Press Scroll Lock a few times and watch the cursor change. It is thicker in Pushright mode, so it can "push" better. The Top Line reads "Push" or "Over" to indicate the mode. After some practice, you'll always know which mode you're in by looking at the cursor or the Top Line.

2. Place the cursor at the beginning of "Fritzie" in the second paragraph. Press the space bar a few times. Watch "Fritzie" move to the right. The paragraph stays within the margins because automatic reformatting is on. In Pushright mode the space bar moves text to the right.

3. Now move the cursor to the first letter of the word "volcano". Type "black" and press the space bar. As you type, the characters on the right are pushed over to make room.

In Overwrite mode, you replace old text as you enter new text, writing over what is already there. To go from Pushright to Overwrite mode, press the Scroll Lock key. Press it again to change back. If using a Zenith portable, press right shf key and scroll key.

4. Move the cursor to the first letter of the word "lake". Press the Scroll Lock key once. Type "pond" and watch the letters write over the old characters. You are in Overwrite mode. Press the space bar 3 or 4 times. In Overwrite mode, spaces write over existing text.

Lesson 8: Changing Text

There are basically two ways to change text: 1) add new text, and 2) delete existing text. In Lesson 7, you learned how to add new text in Pushright and Overwrite modes.

PC-Write gives you a number of ways to delete text. Press the Bksp (Backspace) key to delete the character to the left of the cursor. Press the Del (Delete) key to delete the character at the cursor.

The Bksp Key

The Bksp key is located above the Enter key. It may have a left arrow on it, but it is not the same as the Left Arrow key. If you mistype a character, press Bksp to delete it. The cursor moves back so you can type the correct character. Bksp moves the cursor just as the Left Arrow key moves it, but it also deletes the character to the left. In Pushright mode, Bksp pulls the rest of the line to the left. In Overwrite mode, it just moves left and replaces the character with a space. The space bar pushes to the right in Pushright mode, or overwrites and moves the cursor to the right in Overwrite mode, so Bksp and the space bar are complementary.

1. Move the cursor to the second paragraph of the story. Make sure you are in Pushright mode (see the previous lesson), then place the cursor on the period after the word "parts". Press the Bksp key 5 times until the whole word is gone.

2. Now press Scroll Lock to get into Overwrite mode and press Bksp 9 more times to delete the word "computer". This time blank spaces remain. The line did not pull to the left. Press the Scroll Lock key to return to Pushright mode.

The Del Key

The other key that deletes one character at a time is the Del key. It's located in the bottom right corner of the keyboard. It deletes a character, but it doesn't move the cursor. It pulls the rest of the line from the right, even in Overwrite mode.

3. Move the cursor to the beginning of the word "warm" in the first paragraph. Press the Del key 5 times to delete "warm,". Compare this to the Bksp key.

4. An easy way to replace a longer word with a shorter one is to use Overwrite mode and Del together. Move the cursor back to the second paragraph. Switch to Overwrite mode by pressing Scroll Lock. Move the cursor to the first letter of the word "shallow" and type "deep". Now press the Del key 3 times to close up the gap. Press the Scroll Lock key to return to Pushright mode.

The Line Boundary

PC-Write places a line boundary character at the end of every line. This is an "invisible" character, like a space. Just as the A key inserts a letter "A", the Enter key inserts a line boundary. What happens if the cursor is at the start of a line and you press Bksp? In Overwrite mode you go to the end of the previous line. In Pushright mode you also delete the line boundary.

Automatic reformatting moves words from line to line automatically. To insert and delete line boundaries, you must first turn off automatic reformatting by pressing Shf F7 until the Top Line says "Wrap-".

5. Move the cursor up one line by pressing the Up Arrow key, then to the beginning of the line by pressing Home. Make sure you are in Pushright mode. Press the Bksp key to delete the line boundary. Now press the Enter key to split the line again.

## Lesson 9: More Ways to Change Text

There are three more simple ways to delete text. Ctl Enter deletes the text on a line from the cursor to the end of the line. If the cursor is at the start of the line, Ctl Enter deletes the whole line. Ctl Esc deletes one word at the cursor. Ctl Bksp deletes the word to the left of the cursor.

1. Place the cursor at the beginning of the word "for" in the second paragraph. Press the Ctl key and hold it while you press Esc. Watch the word disappear. PC-Write considers the spaces after a word to be part of the word.

2. Place the cursor at the beginning of the row of dots at the bottom of the file. Now press Ctl Enter and watch the whole line disappear.

3. Move back up to the last paragraph. Place the cursor at the end of the last line and press Ctl Bksp. Watch the word to the left of the cursor disappear.

There are a few other ways to delete text; these are described in the Help screens and in the PC-Write User's Guide.

### Undeleting

When you delete text with Ctl Enter, Ctl Esc, or Ctl Bksp, the text is moved to a part of the computer's memory called the Hold Area. It stays in the Hold Area until you put something else there or exit the file.

4. Move the cursor to the beginning of a line. Press Ctl Esc to delete one word. Now press Ctl F4 and watch it reappear. The word is highlighted. Press F5 to remove the highlighting.

As long as you don't place anything else in the Hold Area or exit the edit program, you can bring the text back any number of times. You can also move the cursor and undelete anywhere in the file. This is one way of moving a block of text. In Lesson 11 you'll learn another method. Characters deleted with Del or Bksp are not saved in the Hold Area.

5. Move the cursor to the beginning of the same line. Press Ctl Enter to delete the whole line. Now move the cursor a few lines down and press Ctl F4. Watch the line reappear. Press Ctl F4 two more times, then press F5 to remove the highlighting. Now move the cursor back underneath the last paragraph and press Ctl F4 one more time. Then press F5.

The Ins Key

What if you're in Overwrite mode and want to replace a short word with a longer one? You need to use the Ins key. It inserts spaces, even in Overwrite mode. (For Zenith portable, press right shift key with insert key.)

6. Place the cursor at the first letter of "deep" in the second paragraph. You should be in Overwrite mode. Now press the Ins key 6 times and type "bottomless".

The Ins key is like the space bar in Pushright mode. However, like Del, it doesn't move the cursor. Ins and Del are not affected by Pushright or Overwrite mode. You can use Ins and Del to shift a line to the right or left.

7. Move the cursor down a line and press the Home key. Now press the Ins key 3 times. Watch the line shift to the right. Now press the Del key 3 times and watch it shift back to the left.

After a while you may pick some keys that you like for editing. Perhaps you will stay in Pushright mode and mostly use the Bksp key. Maybe you'll stay in Overwrite mode and use Bksp with Ins and Del. Perhaps you'll use both methods.

Lesson 10: Changing Margins

In the last few lessons you made several changes to the story. Automatic reformatting has kept the text between the left and right margins. You can change the location of the margins by pressing the F2 key. A special line of text, called the Ruler line, appears on the screen at the cursor. By editing the Ruler line, you control the margins and tab settings.

1. Place the cursor at the top of the screen. Press the F2 key. The Ruler line appears on the screen, temporarily replacing the text on the line. Notice that the Top Line changes too. Now look at the "L" and the "R" on the Ruler line. The "L" is the location of the left margin, column 1. The "R" is the location of the right margin, column 78. The Top Line tells you the location of the cursor; press the Shf End key and look at the Top Line to see that the "R" is in column 78.

2. Move the cursor to column 45 and enter an "R". The original "R" in column 78 changes to a lower case "r". You can only have one capital "R" in a Ruler line. There are other margin letters, but the "R" is the simplest. Once you change the Ruler line, it stays until you change it again or exit the edit program. You do not have to leave the Ruler line on the screen.

3. Press the F2 key again. The Ruler line is gone, but the new margin is still in effect. When you enter new text, it appears at the new right margin. This new margin setting stays in effect until you change it again or exit the edit program. You can make permanent changes to the Ruler line, but that information is beyond the scope of this tutorial.

4. Move the cursor to the end of the last line of text in the file and press the Enter key twice. Type the following text and see how the text wraps around at column 45:

    By and by, the story goes, Franz lost interest in his computer and took up deep sea diving. Each morning he would dive to the bottom of the shallow lake and stay there until it got dark. "Nothing ever really changes," thought Fritzie. <Enter>

With automatic reformatting on, the new right margin takes effect for existing text when you edit it. With automatic reformatting off, you must press the F7 key to reformat existing text to the right margin.

When you reformat a paragraph with F7, you arrange the text between the margins. As you enter new text, PC-Write moves it to the next line when you reach the right margin unless you have wordwrap and automatic reformatting off.

5. Press Shf F7 to turn automatic reformatting and wordwrap off. The Top Line says Wrap-. Press the Enter key twice then type a long line of text. It does not wrap around; it keeps going off the screen.

6. Press Shf F7 again. The Top Line says Wrap-. Now wordwrap is on but automatic reformatting is off. Place the cursor in the middle of the line you just typed and type some new text. Notice that the text does not wordwrap even though wordwrap is on. Wordwrap does not reformat existing text when you edit it, only new text. Move the cursor to the beginning of the line and press the F7 key. The line falls between the left and right margins. Move the cursor to the end of the line with the End key and type some new text. The text is formatted correctly as you type because wordwrap is on.

Lesson 11: Copying, Moving, and Deleting Text

In this lesson, you'll learn to move, copy, and delete blocks of text. A block can be any amount of text that's all together in one place.

To copy a block of text from one spot in a file to another:

1. Place the cursor at the beginning of the fourth paragraph of the story. Press F3 and then the Down Arrow key three times. The text is highlighted as you move the cursor (on a color monitor, it's purple). This is called Active Marked text.

2. Press F3 again. The text now appears very bright (red on a color monitor). It is now called Frozen Marked. When you move the cursor, no more highlighting occurs. Move the cursor between the second and third paragraphs.

3. Press F3 a third time. You have copied the paragraph to the new location. Notice that the copy stays marked. Press F5 to clear the marking.

To move a block of text from one place to another:

4. Place the cursor at the beginning of the second paragraph and press F6. Move the cursor past the end of the paragraph and press F6 again. Move the cursor below the new third paragraph. Then press F6 a third time. Watch the paragraph move. Press F5 to remove the highlighting.

To delete a block of text:

5. Place the cursor at the beginning of the last paragraph and press F4. Move the cursor to the end of the paragraph and press F4 again. Watch the paragraph disappear.

The text is not yet gone for good. It's in the Hold Area. If you delete a block of text by mistake, you can bring it back again by pressing Ctl F4. This only works until you put something else in the Hold Area, since it only holds the most recent deletion.

6. Press Ctl F4. The paragraph reappears. Press F5 to remove the highlighting.

Lesson 12: Finding and Replacing

Another tool you'll find valuable is finding and replacing text. This feature lets you search for a piece of text and, if you want, replace it with other text. Before you can search, you have to tell PC-Write what to search for. If you plan to replace it, you have to tell PC- Write that too. The F9 key lets you do this.

1. Move to the beginning of the file and press F9. The Top Line says:

   Esc F9:Find "." F10:Replace "."

   The cursor is on the period inside the first set of quotes. Type:
   and <Enter>

To search for "and" in the text:

2. Press Grey+, the darker + key on the far right of the keyboard. *(To use the + key on Zenith portable - press number lock for the calculator and then use the + key in the calculator mode.)* The cursor stops on the first occurrence of "and" and highlights it. Press + again to find the next occurrence. Keep pressing +. When the edit program stops finding "and", the Top Line says:
   Did not find "and"

   Press Grey- to search backwards. This searches for one occurrence of "and" at a time. Repeat if desired. The search takes place from the current cursor position.

To search and replace:

3. Scroll back to the beginning of the file and press F9, then immediately press F10. The Top Line looks like this:
   Esc F9:Find "and" F10:Replace "."

   The cursor is now located under the period. Type: + <Enter>

Now press F10 to search for "and" and replace with "plus". The cursor jumps to the first occurrence of "and" and replaces it with "plus". Press F5 to remove the highlighting.

4. You can decide whether or not you want to replace a particular occurrence after you've located it. The Find and Replace text are already set, so press Grey+ to find the next occurrence of "and".

   Now press F10 if you want to replace it.

You can make PC-Write search for and replace every occurrence from the cursor to the end of the file automatically. To do this, press Alt F10. PC-Write asks if you want to search for every occurrence or unreplace. Unreplace is handy if you accidentally replace the wrong text.

To find and replace every occurrence:

5. Move the cursor to the top of the file. Press the Alt key and hold it while you press F10. The Top Line says:

   Esc:Cancel  F9:Repeat-replace  F10:Un-replace

   Press F9. Every occurrence of "and" is replaced with "plus".

Lesson 13: Help Screens and Menus

Now you know the basics of editing text with PC-Write. If you forget a command and need some help, you can use the Help screens.

1. Press F1 twice. The Help Menu appears. This menu contains a list of Help topics.

These Help screens are not designed to teach you how to use PC-Write. Instead, they will help you remember which key does what. Each of these Help screens covers a specific topic. Notice that the first Help topic is highlighted and appears below the Help Menu. To access the other Help topics, press one of the Arrow keys. (If your computer has only 128K of memory, there is only room for one Help screen.)

2. Press the Arrow keys and watch the highlighting move to different topics.

3. Press Esc to return to the editing screen.

PC-Write has a number of menus to help you access the editing commands.

4. Press Esc.

Notice how the top four lines of the screen become a menu. This is the Main Menu. There are three more main menus: the Ctl Main Menu, the Shf Main Menu, and the Alt Main Menu.

5. Press the Ctl key to see the Ctl Main Menu. Look at the options. Now press Shf to see the Shf Main Menu. Finally, press Alt to see the Alt Main Menu. To access the commands on these menus, type the key (for instance, sF1 means press Shf F1); or move the cursor with the Arrow keys and press Enter; or type the first letter of the menu item. Press Esc to return to the editing screen.

Don't worry about the items on the menus. You will learn the commands when you read the PC-Write User's Guide. For now, let's look at the System/Help Menu.

6. Press F1 to bring up the System/Help Menu. It looks like this:

Esc F1:Help F2.Exit F3.Save F4.Command F5:Name F6:File F7:Print F8:Dir..

You have already learned the first four options on this menu:

| | |
|---|---|
| Esc | Cancels the menu; return to editing. |
| F1 | Brings up the Help Menu. |
| F2 | Saves the file and exits to DOS. |
| F3 | Saves the file and lets you continue editing. |

7. Press the Esc key to return to editing.

You'll learn about the F7 option (printing a file) in Lesson 14. The rest of the options are described in full in the PC-Write User's Guide.

Lesson 14: Printing

Printing is probably the most satisfying part of word processing. Here's where you get to see all of your hard work pay off. You can access the print program from the System/Help Menu while you're editing, or from the DOS prompt.

To use the print program while you're editing a file:

1. Press F1 then F7. The Top Line says:
   File to print (Esc:cancel F8:dir): "b:story"

2. Press Enter again and the top line will read:

   Print control file name (Esc:exit, Enter:none):" "

3. Press Enter again and top line will read:

   Esc:Exit F9:Print to a File F10:Print

Press F10, the following menu appears:

Waiting. Print from "B:STORY" to "PRN", ready to begin.

F1:Help-screen F3:Finished F5:Input-end F7:Repeat-pages F9:Page-stop
F2:Exit-to-DOS F4:DOS-command F6:User-input F8:Skip-pages F10:Continuous
Show help screen, giving dot commands and other information.

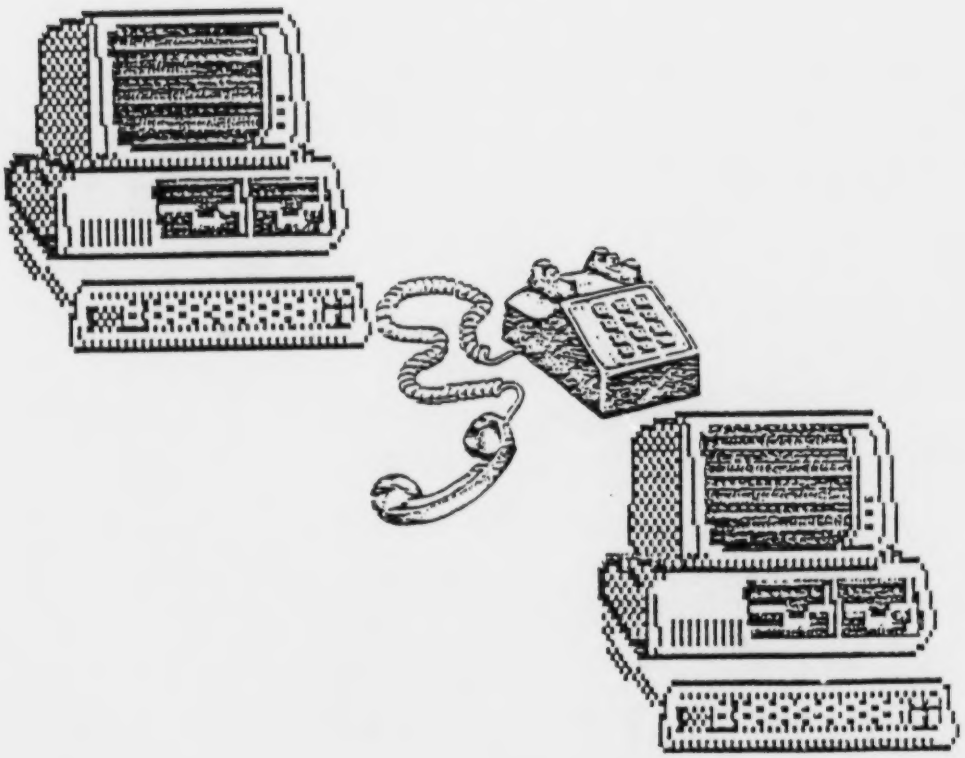
2. Press the F10 key again to print the whole file. After printing, the current file reappears but the cursor is at the top of the file. If your printer only prints one page at a time, press F9 from the menu instead of F10 to print the first page. If you are printing a file with more than one page, you'll have to press F9 to print each page.

Tutorial Summary

Well, you've come a long way in your PC-Write odyssey. Let's sum up the commands you've learned.

| | |
|---|---|
| **Lesson 1: Making a Working Diskette** | |
| Make a working PC-Write diskette. | A>WORKDISK <Enter> |
| **Lesson 2: Creating a File** | |
| See a directory of a diskette. | A>DIR B: <Enter> |
| Edit a new file. | A>ED filename <Enter> |
| **Lesson 3: Entering Text** | |
| Enter text one line at a time. | <Enter> at end of line |
| Toggle between: | Shf F7 |
| Wordwrap on, auto reformatting off. | |
| Wordwrap on, auto reformatting on. | |
| Wordwrap off, auto reformatting off. | |
| Repeat a character. | Hold down the key |
| **Lesson 4: Saving and Exiting** | |
| Save the file then return to editing. | F1 then F3 |
| Save the file and exit the file. | F1 then F2 |
| **Lesson 5: Editing an Existing File** | |
| Get back into an existing file. | A>ED filename <Enter> |
| **Lesson 6: Moving Around the Screen** | |
| Move around by one line or column. | Up/Down/Lt/Rt Arrow keys |
| Move to the left margin. | Home key or Shf Home (for Zenith) |
| Move to the end of a line. | End key or Shf End (for Zenith) |
| Scroll up or down by one line. | PgDn/PgUp |
| Jump up or down by one screen. | Shf PgDn/Shf PgUp |
| **Lesson 7: More About Entering Text** | |
| Toggle Pushright and Overwrite modes. | Scroll Lock key |
| **Lesson 8: Changing Text** | |
| Delete character left of the cursor. | Bksp key |
| Delete character at the cursor. | Del key |
| **Lesson 9: More Ways to Change Text** | |
| Delete from cursor to end of a line. | Ctl Enter |
| Delete the word at the cursor. | Ctl Esc |
| Delete the word to left of the cursor. | Ctl Bksp |
| Undelete text | Ctl F4 |
| Insert spaces. | Ins key |
| **Lesson 10: Changing Margins** | |
| Reformat a paragraph manually. | F7 |
| Bring up Ruler line, change margins. | F2, place "R" at new |
| Remove Ruler line. | F2 |

# ELECTRONIC MAIL
## User's Guide



DEVELOPED BY DR. RICHARD D. ROWELL
FOR
THE CENTER FOR VOCATIONAL PERSONNEL PREPARATION

Lesson 11: Copy, Move, Delete

| | |
|---|---|
| Copy a block of text. | F3 at block start, then<br>F3 at block end, then<br>F3 at new location |
| Move a block of text. | Same as copy but use F6 |
| Delete a block of text. | F4 at block start, then<br>F4 at block end |
| Undelete block of text. | Ctl F4 |

Lesson 12: Finding and Replacing

| | |
|---|---|
| Set find and replace text. | F9 then F10 |
| Search for one occurrence. | Grey+ or Grey-<br>(PCjr: Fn + or Fn -) |
| Search for and replace one occurrence. | F10 |
| Search for/replace all occurrences. | Alt F10 then F9 |

Lesson 13: Help Screens and Menus

| | |
|---|---|
| See the Help screen. | F1 twice |
| See Main Menu. | Esc |

Lesson 14: Printing

| | |
|---|---|
| Print from the edit program. | F1 then F7 |
| Print from DOS prompt. | A>PR filename |

You now have all the basic skills necessary to use PC-Write.

# WHAT IS ELECTRONIC MAIL

Electronic mail is a computerized mail system that allows you to send and receive messages electronically. The messages are stored on a computer in files which are referred to as mailboxes. Each person who has access to the electronic mail system is called a registered user and is assigned an individual computer account in which his or her mail messages are stored. A person has access only to her or his own particular account, therefore each individual's messages cannot be read by other users.

You can send and receive messages. When you send messages, only the person(s) to whom you send the message can access it. When you receive messages, only you can read, print or delete them.

All that is needed to access the electronic mail system is a computer, communications software, and a modem, which connects your computer with your telephone line.* You also need to be registered on IUP's mainframe computer as a user of the electronic mail system. In order to register to use the electronic mail system, contact the IUP Vocational Center.

*For the system currently operating at the IUP Vocational Center, the communications software is called VIP; also, the modem is internal with the Center's Zenith computers.

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# DESCRIPTION OF SYSTEM

Below is a brief description of the computer system that you will be using.*

Hardware (Equipment)

1. Zenith Model 158 Microcomputer with printer

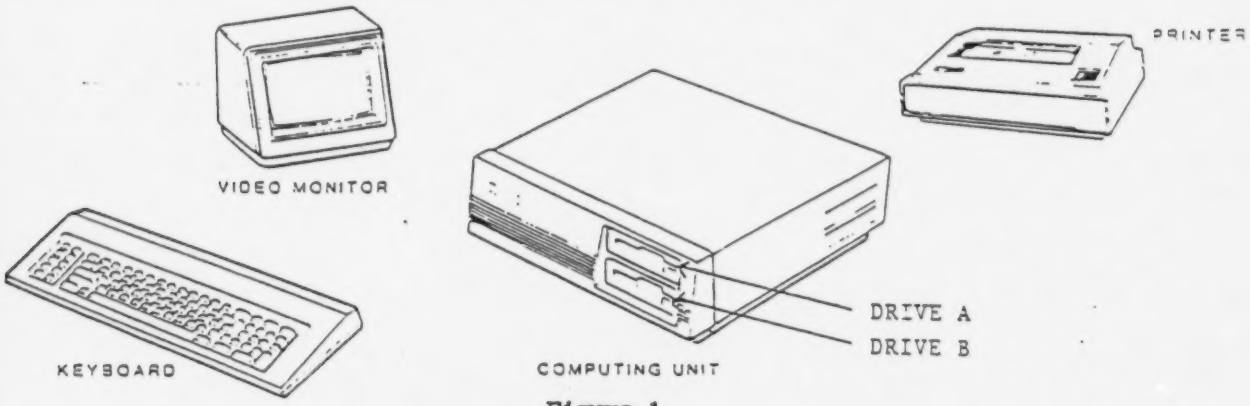


Figure 1

2. IBM Half-Card Modem. This modem has been installed in your microcomputer.
3. Honeywell CP-6 Mainframe Computer. This is located on the IUP campus and is the location where all messages will be stored.

Software

The only software you need is the communications disk (VIP). For those of you who are not familiar with the use and care of floppy disks, a brief description follows on the next page.

*The system described here is the system being used by IUP's Vocational Center and several vo-tech schools in the Western Region; however, other computers will work as well. Any questions should be directed to the Vocational Center.

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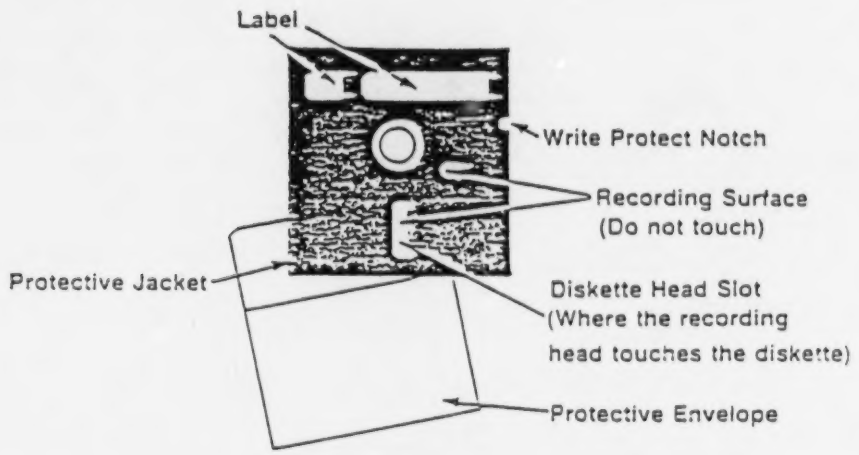



Diskettes are coated with a special magnetic material that can be electrically rearranged by the read–write head. Thus, we can have spots on the diskette that are electrically turned on or off. These spots will remain in their particular on or off position until erased or told to rearrange themselves in another way. This provides a means to store information. Once the information is stored on a diskette, you can remove the diskette from the computer, and turn off the computer without losing your information.

## *DOs and DON'Ts of Diskette Care*

A word of warning. Since the electrical spots can be rearranged by a random electrical field, you must be careful to store your diskettes in a safe place. Do not put them on your monitor or your home television set. Keep them away from extremes of heat and cold. Handle them carefully.

Handling instructions are included with your diskettes when you purchase them. Follow the directions and your diskettes will last a long time. Here is a list of guidelines.

**DOs**

1. Keep a diskette in its cover when it is not in use.
2. Hold a diskette by the corner only.
3. When marking a diskette label use only a felt-tipped pen.

**DON'Ts**

1. Do not write on a diskette with pencils, ballpoints, etc. Do not use paperclips.
2. Keep diskettes away from high temperatures.
3. Do not bend diskettes.
4. Do not attempt to clean a diskette.
5. Keep diskettes away from magnets.

**Figure 2**

## *SYMBOLS USED IN PROCEDURES*

In order to guide you through the procedures in this manual, a number of symbols are used. Each symbol requires you to do something. These symbols will be used extensively throughout this manual, so please read them carefully. You will probably need to refer back to this page quite often until you learn how the mail system operates. The symbols are:

| SYMBOL | DESCRIPTION |
|---|---|
| *COMMAND* | Uppercase italicized print means that you are to type the text exactly as it appears. |
| *response* | Lowercase italicized print means that you are to type anything which fits the category indicated by response, i.e., *name* means that you are to type a person's name. |
| <xxx> | Angle brackets indicate that you are to press the KEY labeled xxx, i.e., <F10> means that you are to press the F10 function key. (The function keys are located on the far left side of the keyboard on the Zenith 158 computers, and on the top of the keyboard on the Zenith portable computers.) |
| **REPLY** | Boldfaced type indicates text which the computer will display for you. |
| <CR> | Indicates that you should press the Return key. |

# *PROCEDURE FOR CONNECTING YOUR MICROCOMPUTER TO THE MAIL SYSTEM*

You are now ready to connect your microcomputer to IUP's mainframe computer in order to access the electronic mail system. Please follow steps 1-8 on the following pages.

NOTE: At this point, be sure that your telephone cable is connected to the computer and to the telephone jack in the wall.

STEP 1.
Place your VIP communications disk into Drive A. (Drive A is the top or front disk drive on your computer).

STEP 2.
Turn on your computer.

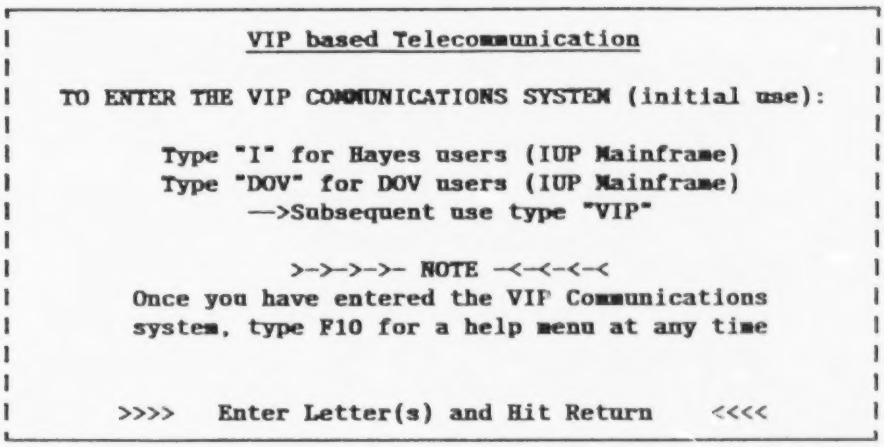
STEP 3.
Turn on your monitor, if it is a separate unit.

STEP 4.
Close the door on Drive A.

STEP 5.
Your computer will now prompt you to enter the date. Type in the current date in the form that is specified on the computer and press the return key.

Your monitor should now look like Figure 2.5, on the next page. If you do not see this display, press the <Ctrl>,<Alt>,<Del> keys ALL AT THE SAME TIME. After a few seconds, you will be prompted to enter the date again. At this point, start from step 5 above.

NOTE: The <Ctrl>,<Alt>,<Del> key sequence resets your computer, which is the same as turning it off and back on again. This can be done any time you encounter unexpected problems. Anytime you do this while using the VIP communications disk, the computer should respond with the prompt for the date, which means you should start again from step 5 above.



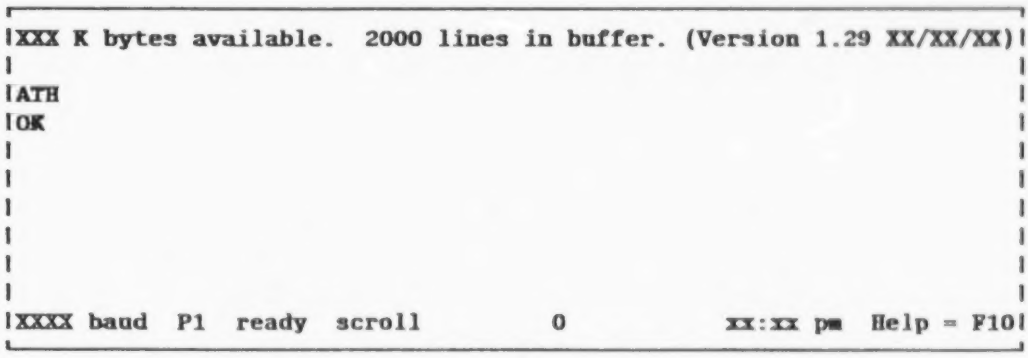

--Figure 2.5--

STEP 6.

Type: *VIP<CR>*

in order to access the VIP communications software that will enable you to connect with the electronic mail system on the IUP computer.

Your monitor should now look like Figure 3. If you do not see this display, press the <Ctrl>,<Alt>,<Del> keys ALL AT THE SAME TIME. After a few seconds, you will be prompted to enter the date again. At this point, you will have to go back to page 5 and start from Step 5.




--Figure 3--

STEP 7.

Press <F10>  (Press the F10 function key.)

Whenever you press the F10 function key, a list of function key definitions that looks like Figure 4 is displayed on the screen. Each function key has a specific purpose. The keys that you may be using are explained on the next page.

```
                    Function Key Definitions

        F1 --- I.U.P. Mainframe Logon, Direct Dial (toll)
    Ctl-F1 --- I.U.P. Mainframe Logon, from in town
  Shift-F1 --- I.U.P. Mainframe Logon, from on campus
    Alt-F1 --- I.U.P. Mainframe Logon, Credit Card
        F2 --- Logoff and return to DOS
        F3 --- Recall Last Line Typed
        F4 --- Erase Current Line
        F5 --- Toggle Log File (SESSION.TXT) on/off
    Alt-F5 --- Print Buffer Set-up (Start)
        F6 --- Toggle Local Printer ON and OFF
    Alt-F6 --- Print Buffer (print & disable)   HELP MENUS
        F7 --- Upload File                      ----------
    Alt-F7 --- Template Change              Shift F6-Print Buffer Help
        F8 --- Download File                Shift F7-Template Help
    Alt-F8 --- Template Change                   F9-File Transfer Help
    Alt-F9 --- Dump Buffer to File (SCREEN.TXT)
       F10 -- Function Key Definitions
   Alt-F10 -- Dump Buffer to Local Printer
```

--Figure 4--

NOTE: Once you become familiar with the communications software and the mail system, you will not need to press the F10 key every time you access the software. However, it is available at anytime as a 'help' key. Once you are familiar with the system, you only need to press the F10 key if you need help on a specific key definition.

<F1> - Automatically connects you to the IUP computer, if you are located anywhere that is considered a TOLL CALL to Indiana. You will be charged a toll charge when you use this option.

<Ctrl><F1> - Automatically connects you to the IUP computer, if you are located anywhere that is considered a LOCAL CALL to Indiana.

NOTE: With the above two options, you do not need to dial the computer telephone number; the disk will automatically dial for you. Each disk is specific to the person to whom it is issued and it is configured to dial only from that person's home base.

<F2> - Disconnects you from the IUP computer.

<F6> - Toggle key to turn your printer on and off.

<F7> - Used for uploading files.

<F8> - Used for downloading files.

<F10>- Displays the help screen shown on the previous page.

## *PROCEDURE FOR DIRECT DIALING <F1> or <Ctrl><F1>*

At this point, you must decide which key sequence you will use to enable the modem to dial the IUP mainframe computer. If you live anywhere that is considered a toll call to Indiana, you will use <F1>. If you live anywhere that is considered a local call to Indiana, you will use <Ctrl><F1>.

STEP 8.

Press <F1> or <Ctrl><F1>, whichever is appropriate.

At this point your microcomputer is automatically dialing the IUP computer, so there will be a several second delay before the next display appears. Remember that you can only use this option from your home base, or if you are calling from the area code of your home base.

If you successfully connect to the mainframe, your monitor will look like Figure 5.

NOTE: If all of the telephone lines to the IUP computer are busy or if the computer is down, you will see a continuous, meaningless string of characters appearing on your screen, and the bottom line will flash on and off. If you get this message, press the <Ctrl><Alt><Del> keys ALL AT THE SAME TIME; then go back to step 5 on page 5 and continue on from that point.

```
|Welcome to the IUP CHIEF network
|Which service would you like?CP6
|You will be connected to FEP X.
|Connection established to CP640B00 - proceed.
||x|||please type a left parenthesis
|MESSAGE
|*** Welcome to C01 CP-6 at IUP
|XX:XX DAY MONTH XX 'XX Line X(FEP2)-0B00
|Logon Please:
|
| *** SYSID# 82979 ON IUP AT XX:XX:XX.XX DAY MONTH XX 'XX.
|
|$XEQ SETUP.56125
|$DONT ECHO
|
|                      WELCOME TO THE CP6
|
|                          MAIL SYSTEM
|
|$MAIL
|MAIL B1A HERE
|>LIST UNEX OR MARK
|>None found -OR- a list of messages will display
|>
```

--Figure 5--

Once you have successfully connected to the IUP computer, you will automatically be entered into the mail system and any mail messages that you have not yet viewed will be listed on the screen. If all your messages have been viewed, the screen will respond with the message 'None found', which means that there are no NEW messages. THe cursor on the screen will be at a greater-than symbol (>). This is the MAIL system prompt, which indicates that you can now issue any MAIL command.

The next few sections of this manual will describe the procedure for sending mail to registered users, the procedure for processing incoming mail and the procedure for exiting from the mail system.

# *PROCEDURE FOR SENDING MAIL TO REGISTERED USERS*

This page is a brief overview of the process for sending mail to registered users. Do not type what is on this page; just look over it to get a general idea of the process that is used. A more detailed explanation is contained in the tutorial on the next few pages. After looking over this page, go on to the tutorial to send a sample message.

*>SEND<CR>*

**TO:***name<CR>*

SUBJECT:*any meaningful subject line<CR>*

**BODY:***line 1 of your message<CR>*
*line 2 of your message<CR>*
*line 3 of your message<CR>*
*<CR>*

**OPTIONS:***END<CR>*

MESSAGE SENT

*>END<CR>*

*!<F2>*

NOTE: Function key <F2> will disconnect your microcomputer from the IUP computer and after a few seconds your computer screen will show a Zenith system prompt (A>). At this point you can either start over from page 5 or open the door on Drive A and turn your monitor and computer off.

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## *A TUTORIAL ON HOW TO SEND A MESSAGE*

You must be at the MAIL prompt (>) to begin. Your cursor automatically advances to the MAIL prompt when you successfully connect to the IUP computer.

NOTE: If your computer is not at the MAIL prompt, press the <Ctrl>,<Alt>,<Del> keys ALL AT THE SAME TIME, then start from Step 5 on page 5.

At this point, you are ready to send a message. At the MAIL prompt (>):

--Type *SEND<CR>*

Your screen should now look like this:

```
>SEND
TO:
```

--Figure 9--

After the TO: prompt:

--Type the *name* of the person to whom you are sending a message, and press the return key. Your screen should look like Figure 10.

```
>SEND
TO:the name that you typed in
SUBJECT:
```

--Figure 10--

MAIL will then prompt you for the subject of your message. The subject is a short description of the message that you will be typing and is limited to one line. At the SUBJECT prompt:

-- Type in any appropriate *subject* and press the return key.

Your screen should now look like Figure 11.

```
>SEND
TO:the name that you typed in
SUBJECT:the subject that you typed in
BODY:
```

--Figure 11--

You are now ready to begin typing the body of your message, however there are a few rules to remember. First, your message must be single spaced. Press the return key when your typing is approaching the right side of the screen. You may type as many lines as you want. When you are finished typing the last line of your message, press the return key twice. The first carriage return is to tell MAIL that you are finished with the actual line you are typing, and the second carriage return is to tell MAIL that you are finished typing the ENTIRE BODY of your message.

Second, if you make a mistake while you are typing, use the Back Space key to back up to the point where you made the mistake and retype the rest of the line. Be very careful to watch for errors before you press the return key.

At the BODY prompt:

-- Type the *message* that you want to send, keeping in mind the guidelines stated above.

When you have finished typing your message, your screen should look like Figure 12.

```
|>SEND
|TO:the name that you typed in
|SUBJECT:the subject that you typed in
|BODY:line one of your message
|     line two of your message
|     line three of your message
|     etc.
|OPTIONS:
```

--Figure 12--

Now you are ready to SEND your message. At the OPTIONS prompt:

-- Type: *END<CR>*

After you type END your monitor should look like Figure 13.

NOTE: If you want to cancel a message, you must do so at the OPTIONS: prompt. To do this, type *CANCEL<CR>* instead of END at the OPTIONS: prompt.

```
>SEND
TO:the name that you typed in
SUBJECT:the subject that you typed in
BODY:line one of your message
     line two of your message
     line three of your message
     etc.
OPTIONS:End (or Cancel)
Message Sent
>
```

--Figure 13--

You do not need to sign your messages. Your name is attached to each message according to your computer account number, which is automatically recorded whenever you successfully connect to the IUP computer.

If you would like to send another message, use the same procedure that you just completed (start at page 12). If you wish to exit MAIL, follow the procedure on page 18.

# *PROCEDURE FOR PROCESSING INCOMING MAIL*

There are several procedures explained on the next few pages for processing incoming mail. They are: displaying a summary of messages (subject lines only), displaying individual messages, printing messages and deleting messages.

Whenever you are displaying a summary of messages or individual messages, it is possible that the display will be longer than one screen. A feature installed on your computer causes only one screen of information at a time to display -- otherwise, the text will scroll and you cannot read the text that scrolls off the top of the screen. With this PAGEHALT feature, at the end of each screen of text the computer will pause and beep -- whenever you are finished reading that screen, you MUST press the return key to continue. If you do not press the return key, the screen display will not move.

For example, if you are displaying a message that is longer than one screen, the computer will pause to let you read the first screen, then you will press the return key and you can read the second screen, etc. This will continue until you get back to the MAIL system prompt (>).

TO SEE A SUMMARY OF ALL MESSAGES IN YOUR ACCOUNT

To see a summary of all the messages in your account:

At the MAIL system prompt (>), type:

*LIST ALL<CR>*

This command prints out the only the subject line of every message that is being stored in your account. To view the BODY of the message, you must use the DISPLAY MESSAGE command described on the next page.

TO DISPLAY INDIVIDUAL MESSAGES

To read a message that has been sent to you, at the MAIL system prompt (>),

type: *DISPLAY MESSAGE number<CR>*

NOTE: Each message that is sent to you is automatically assigned a number, which is displayed at the beginning of the message subject line. The number that you enter after the DISPLAY MESSAGE command (above) is the number of the message that you would like to view.

You can display a consecutive list of messages by placing a dash (-) between the numbers of the messages that are to be displayed. For example, to display messages two through five, type *DISPLAY MESSAGE 2-5* at the MAIL system prompt.

You can display various messages by placing a comma (,) between the numbers of the messages that are to be displayed. For example, to display messages two, four and seven, type *DISPLAY MESSAGE 2,4,7* at the MAIL system prompt.

TO PRINT MESSAGES

To print a message that has been sent to you: (make sure your printer switch is turned on and your on-line light is lit)

At the MAIL system prompt (>):

Press <F6>

- The <F6> key will toggle your printer on.

Type: DISPLAY MESSAGE number<CR>

NOTE: Each message that is sent to you is automatically assigned a number which is displayed at the beginning of the message subject line. The number that you enter after the DISPLAY MESSAGE command (above) is the number of the message that you would like to print.

The message should be printing at this point. After the message has finished printing:

Press <F6> - The <F6> key will toggle your printer off.

You can print a consecutive list of messages by placing a dash (-) between the numbers of the messages that are to be printed. For example, to print messages two through five, type *DISPLAY MESSAGE 2-5* at the MAIL system prompt.

You can print various messages by placing a comma (,) between the numbers of the messages that are to be printed. For example, to print messages two, four and seven, type *DISPLAY MESSAGE 2,4,7* at the MAIL system prompt.

TO DELETE MESSAGES

All MAIL messages will be stored in your account until you delete them. To delete a message that has been sent to you, at the MAIL system prompt (>),

type: DELETE MESSAGE number<CR>

NOTE: Each message that is sent to you is automatically assigned a number which is displayed at the beginning of the message subject line. The number that you enter after the DELETE MESSAGE command (above) is the number of the message that you would like to delete.

You can delete a consecutive list of messages by placing a dash (-) between the numbers of the messages that are to be deleted. For example, to delete messages two through five, type *DELETE MESSAGE 2-5* at the MAIL system prompt.

You can delete various messages by placing a comma (,) between the numbers of the messages that are to be deleted. For example, to delete messages two, four and seven, type *DELETE MESSAGE 2,4,7* at the MAIL system prompt.

**BE SURE THAT YOU DELETE MESSAGES THAT YOU NO LONGER NEED TO STORE IN YOUR COMPUTER ACCOUNT.**

# *PROCEDURE FOR EXITING FROM THE MAIL SYSTEM*

You can exit from the mail system anytime you are at the MAIL prompt (>). At the MAIL prompt (>):

-- Type: *END<CR>*

The computer will display a '!' (called a 'bang'). At this point, you may either use the upload or download functions or exit from the computer system completely.

If you want to upload or download, use the instructions on the next few pages. After you upload or download or anytime that you want to re-enter the MAIL system and your computer is at a '!', you must type 'VOCEDMAIL.' (don't forget the period after VOCEDMAIL) and press the return key. You may then use the MAIL commands that have been explained in this manual.

If you are finished and want to exit from the system completely, press *<F2>*. Function key <F2> will disconnect your microcomputer from the IUP computer and after a few seconds your computer screen will show a Zenith system prompt (A>). At this point you can either start over from page 5 or open the door on Drive A and turn your monitor and computer off.

In order to transfer documents back and forth from the IUP computer to your microcomputer in the shortest amount of time, there is a process called uploading and downloading. Instead of reading a message as you would in the MAIL system, you can transfer a file that was input by someone else with a word processing program onto a floppy disk. This process is called DOWNLOADING.

On the other hand, if you have a document that you would like to transfer to any other registered user, you can input the document onto a floppy disk with your word processing program, and UPLOAD the document to the IUP computer for other registered users to access. The instructions for uploading and downloading follow:

TO UPLOAD A DOCUMENT:

Make sure that you have the floppy disk that contains the file that you want to upload in Drive B.

At the !: (To exit from mail, and get to the '!', follow the instructions on page 18.)

Press <F7>

The monitor will display:

**Upload from:**

The file the you want to upload should be on your floppy disk which you have in Drive B. For example, if you typed a file called EXAMPLE.123 on Drive B, and you want to upload it to the IUP computer, at the Upload from: prompt, type B:EXAMPLE.123. At the Upload from: prompt:

Type the name of the file that you want to upload.

The monitor will display:

To:

At this point, specify a name that you would like the file to be called on the IUP computer. Filenames on the IUP computer must be from 1-8 characters, typed in all capital letters, with no spaces or special characters. Also, the filename must begin with the letters 'UP'. At the To prompt:

Type the filename that you specified, **IN ALL CAPITAL LETTERS**

The monitor will display:

```
XEQ $MODEMUP.MICROLIB FID='your filename,BIN'
!MODEM.X OVER your filename (NOBELL,BINARY)
MODEM COO HERE (04/27/85)
    File OPEN - Ready to RECEIVE your filename
    # records (xxxx characters) RECEIVEd
    Elapsed time: xx.xx Seconds.
!
```

After a few minutes, your file is uploaded to the IUP mainframe computer.

NOTE: When downloading and uploading files, it usually takes a few minutes, depending on how long the file is.

TO DOWNLOAD A DOCUMENT:

Make sure that you have a floppy disk in Drive B with space available for the document that you will be downloading.

At the !: (To exit from mail, and get to the '!', follow the instructions on page 18.)

Press <F8>

The monitor will display:

**Download to:**

At this point, specify a filename (1-8 characters) that you would like to call the file once it is downloaded to your disk. At the Download to prompt:

Type that filename, with a B: in front of it.

The monitor will display:

**From:**

Type the name of the file that you want to download (in all capital letters) with .90031 after the name of the file.

The monitor will display:

```
XEQ $MODEMDOWN.MICROLIB FID='your filename'
$DONT ECHO
!MODEM.X filename (NOBELL,SCAN,BINARY)
MODEM COO HERE (04/27/85)
   Send File OPEN - x blocks - Awaiting NAK.
   xxxx characters SENT successfully.
   Elapsed time: xx.xx Seconds.
!
```

After a few minutes, your file is downloaded from the IUP mainframe, and you can access it by opening it with your word processing program.

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At this point, if you want to reenter the mail system, type VOCEDMAIL. and press the return key. (Don't forget the period after VOCEDMAIL.) If you want to disconnect from the computer, follow the instructions on page 18.

## 16. HIRING INSTRUCTORS AND TRAINERS

A key factor in the success of a cooperative demonstration training program between industry and education is a readily available, high-quality instructional staff with up-to-date skills they can share with adult workers from industry. In Pennsylvania, instructor/tradespersons who are skilled in high tech subjects such as electronics, robotics, word processing, spreadsheet development, computer-controlled machine operation, and solid state motor controllers can be found teaching in secondary vocational-technical schools, or in high schools which house a vo-tech "wing." Such high schools are called "comprehensive" schools because they offer both general education and vocational education curricula.

The vo-tech and comprehensive schools, however, usually do not offer all the high-tech training programs which industry requires. Samples of programs not usually offered in the secondary vo-tech system may include courses in computer networking, machine "vision," blueprint reading, quality control, fluid power, statistical process control, and higher-level mathematics such as algebra, trigonometry, plane geometry, or calculus. When personnel managers in western Pennsylania manufacturing industries asked for coursework in these topics, the directors of the cooperative demonstration project sought help from teachers or subject matter experts in two-and four-year colleges, or in private industry. As a result, linkages were created between Indiana University of Pennsylvania and the technical training branches of the following educational organizations:

- Butler County Community College
- California University of Pennsylvania
- Erie County Adult Skills Center
- Harry T. Kerr Adult Skills Center
- PowerSafety International Training Center
- Ralph T. Hiller Hydraulics Corporation

## 17. EVALUATION METHODS AND PROCEUDRES

It has become increasingly common for administrators from vocational-technical schools and postsecondary institutions to seek input from adult students regarding the value of educational programs in which they have been enrolled (O'Reilly, 1981). This input is sought in planning as well as in evaluating training programs. Evaluation of these programs is designed primarily to provide good information for decision making. The six major purposes of evaluating adult education programs are to:

1. to contribute to decisions about program installation
2. to contribute to decisions about program modification
3. to obtain evidence to gather support for a training program
4. to obtain evidence to gather opposition to a training program
5. to contribute to the understanding of basic psychological, social, and other processes
6. to contribute to decisions about program continuation, expansion, or certification.

### Designing Evaluation Instruments

The first step in planning any evaluation process is to define its purpose. This definition will provide guidance in determining what and how data should be collected. Only those data necessary to fulfill the purposes of the evaluation should be collected. Thus, if one of the purposes of the evaluation process is to determine how students feel about their training, "satisfaction" or "perception" data should be collected.

### Measuring Perceptions

Many vocational educators feel that former students' perceptions with their training provide valuable data. Since perceptions are actually opinions or judgments, data collection instruments often will ask students for their opinions or level of satisfaction with a training program, its instructor, course content, and so on.

Collecting "perceptions" data is a complex undertaking. Therefore, one of the first things that should be done when collecting such data is to make clear to respondents exactly what is being asked of them. Be sure to use simple, clear, concise terminology when writing a data collection instrument. Ask a former student for her "opinion," for example, of her electronics training program rather than her "perceptions" about the program.

Other helpful techniques for improving the reliability of the information gathered about students' perceptions include specifying the criteria that will be used in arriving at a judgment. This narrows the focus of the evalation, and, although it may still be impossible to certify that all respondents use the same criteria to arrive at their conclusions, you know that they, were at least told to do so. Specifying criteria

establishes a mindset for the respondent, helps to clarify exactly what is being asked, and eliminates the need for guessing how the question should be answered. It may also reduce or eliminate sources of personal bias such as attitude, mood, or recent experience.

## Sample Evaluation Forms

Samples of evaluation forms used by students, instructors, and employers who participated in the Northwestern Pennsylvania Cooperative Demonstration Program are shown on the following pages.

## Using Evaluation Information

When examining the extent to which perceptions of effectiveness of training are related to actual evidence of effectiveness, Blumenfeld and Crane (1973) found that no relationship exists. They therefore concluded that perceptions are opinions, not evidence of effectiveness, and should be recognized as such. Since the validity and reliability of such data are somewhat suspect, they should be used with extreme caution and for limited purposes. Blumenfeld and Crane suggest that the utility of such information can be increased by supporting it with more specific data and recommend the use of a pretest, posttest research design with a control group. A research design of that nature provides the kinds of data needed for accurate assessment of program effectiveness and serves as a basis for evaluating the reality of former students' judgments and opinions. This approach is reinforced by Parker (1973) although his recommendations are more general. To gauge program effectiveness adequately, Parker suggests the following:

- o posttraining job performance data
- o posttraining group performance data (how the training affected the group with whom the individual worked
- o participant satisfaction data
- o participant knowledge-gain data.

Blumenfeld and Crane would contend that such an evaluation design is inadequate without pretest data and a control group. However, it represents a definite improvement over the use of subjective data and opinions alone and is more likely to be used than the more scientific pretest, posttest research design with a control group.

## Reporting Evaluation Results

One key to proper use of former students' evaluations of their training is to use the information for the specific purposes for which it was gathered. The validity and reliability of such data are suspect enough that to use them in post hoc "fishing expeditions," especially those of a cause-effect nature, is risky and perhaps, unethical. Reporting the information in a different form than that in which it was collected also raises questions of ethics and propriety. One common questionable procedure is the combining of response

categories or options. If data are collected on a four-point scale of "excellent," "good," "fair," and "poor", they should be reported on that four-point scale. To combine categories such as "excellent" with "good" and "fair with "poor" masks the actual results. Evaluators must be willing to report results in the most accurate, straightforward manner.

When former students' evaluations of their training are reported, some explanation and interpretation should be provided. It is unfair and discourteous to the reader to do otherwise. Explanations should include how the data were collected, including the actual questions asked, and should alert the reader to the possible sources and types of bias that the data may include. Moreover, a reasonable and honest interpretation of what the data acutally do and do not mean should be provided, including some discussion of what the data mean, for example, in light of such factors as the state of the economy or the current job market. It is important that those who may use the data understand their limitations--limitations that can best be defined by whoever collected the data.

The judgments, opinions, and level of satisfaction of former students regarding their training are primarily useful for two purposes. First, they serve to indicate aspects of the program needing further study and, although they do not provide the final answers, they can provide early warning of problems or indicate where possible strengths lie. Thus, they serve as a focus for more indepth investigations. Second, they have public relations potential. The data can be used to improve the image of the program within the ethical limitations of the data. The very fact that such data are collected can build good relations since many people like to be asked their opinions and like to feel that educators are interested in those opinions. For that reason alone, the process of evaluation and data collection may be worthwhile.

INSTRUCTOR EVALUATION SURVEY

COOPERATIVE DEMONSTRATION TRAINING PROJECT
Indiana University of Pennsylvania

Directions: Please respond to the following statements by writing your answers directly on this page. You may return your survey to IUP via the enclosed pre-addressed, postage-paid envelope. We would like to thank you in advance for your assistance with our workshop evaluation process.

Title of workshop or course taught:

Workshop site:

Availability of textbooks, materials and supplies:

Meeting place, classroom, laboratories (adequacy)

How was enrollment information distributed? Was it available? Accurate?

Were the guidelines for teaching your course made clear to you? If not, why not?

Please make some general comments about the course and the adult students who participated in the class.

One of the main objectives of this project was to facilitate coordination between private industry and existing educational facilities. Do you feel that your program contributed to this goal? Please explain why or why not.

Additional comments:

# evaluation

## TECHNICAL UPDATING WORKSHOP
## FLUID POWER 1 - MAY 1989

Please evaluate the workshop in the areas of presentation and daily operation.
For each of the following statements, check the response which best represents your opinion.

| | excellent | good | average | fair | poor | N/A |
|---|---|---|---|---|---|---|
| 1. The presenters were | | | | | | |
| 2. The methods of presentation were | | | | | | |
| 3. The technical information and materials were | | | | | | |
| 4. The total instructional time and schedule were | | | | | | |
| 5. The instructional facilities were | | | | | | |
| OVERALL RATING FOR WORKSHOP PRESENTATION | | | | | | |

Please evaluate the workshop in the areas of effectiveness and usefulness.
For each of the following statements, check the response which best represents your experiences.

| How effective was: | not effective | partially effective | moderately effective | very effective | does not apply |
|---|---|---|---|---|---|
| 1. The instruction in upgrading your skills | | | | | |
| 2. The workshop in providing you with information and skills you can put to immediate use | | | | | |
| 3. The workshop in meeting your individual needs | | | | | |
| 4. The workshop in providing retraining of your employees | | | | | |
| OVERALL RATING FOR EFFECTIVENESS | | | | | |

COMMENTS: _____

## References

Blumenfeld, W. S. , & Crane, D. P. (1973). "Opinions of training effectiveness: How Good?" Training and Development Journal 2 (12), 42-51.

O'Reilly, P. A. & Axche, F. M. (1979). Follow-up procedures: A national review. Blacksburg: Virginia Polytechnical Institute and State University.

Parker, T. C. (1973). Evaluation: The forgotten finale of training." Personnel 50 (6), 59-63.

## 18. DEVELOPING PROJECT GOALS AND OBJECTIVES

Project goals may be described as statements of "where one wants to go," while project objectives can be portrayed as statements of "how one is going to get there." Before a project writer can describe where he or she wants to go, however, the writer must determine the needs that must be met. Hence, the process of developing goals and objectives requires a data base from which relevant goals and achievable objectives can be developed. Such a data base can be established from information gathered by questionnaires, surveys, or opinionnaires similar to those described in section 6 of this manual (Market Survey). There are several reasons why it is important to develop goals and objectives for a project.

- When the project outcomes are clearly stated, the process tends to clarify what is to be accomplished by project personnel. Outlining broad goals and specific objectives helps the project staff plan the kinds of activities that will lead to these outcomes.

- Identifying the objectives or purposes of the project enables the writer to communicate his or her thoughts and ideas with other people who may be evaluating the project for funding purposes who may simply be reading the project in an attempt to understand its strategies, activities and intended outcomes.

- Clear statements of project goals are essential to the evaluation of the projectprograms and activities established by the project.

- Identifying and developing goals for a project that operates in a specific geographic region of the country enables the writer to see how his or her project relates to the rest of the nation and the world.

### Goals

Goals are broad statements which pertain to the total project effort. Typically, they are broad statements of intent which are not measurable. They define the conditions to be achieved after the project has run its course with successful outcomes. A sample of a project <u>goal</u> is:

o to insure an organizational structure that is responsive to the needs of business and industry and the training needs of adults in a six-county area of northwestern Pennsylvania

This example shows that one of the goals or outcomes of a particular project is to establish an organizational structure. Note, however, that the statement doesn't suggest what should be done to accomplish this outcome.

Objectives

Objectives, on the other hand, are usually short statements of intent which relate back to the achievement of one of the project's goal statements. While these may or may not be "quantifiable," they indicate what is to be accomplished to attain a particular goal. In this sense, they usually describe the means to be used in achieving the various goals for a project.

If a project's objectives are stated in measurable form, they will be invaluable for evaluating the project's programs and activities. Thus, well-written objectives should contain (a) a performance statement, (b) a criterion for performance, and (c) a condition statement. They must also focus on the responsibilities of the project's managers and staff as they involve or relate to the project's outcomes. For example:

The project coordinator will develop an outreach system that delivers training services through existing classroom and laboratory facilities in industry, secondary vo-tech schools, and post-secondary institutions no later than December 20, 1990.

In the objective shown above, the performance statement is, "The project coordinator will develop an outreach system." The criterion for performance is, "

"that delivers training services through existing classroom and laboratory facilities in industry, secondary vo-tech schools, and postsecondary institutions." The condition statement is, "no later than December 20, 1990."

There are also some cautions which should be observed when developing goals and objectives for a project for a particular service area or geographic region:

o The objectives should be realistic and achievable. For example, an objective stating that ALL employees of a company will be enrolled in a high-tech training program is unrealistic.

o The Total number of goals and objectives should be realistic. This may involve choosing the most important goals and setting priorities for their achievement.

o Specific numbers should be used in condition statements only when there is a sound rationale for them.

Regardless of whether vocational goals and objectives are being developed by one individualor by a committee, the process should involve a variety of persons if the results are to be representative of and acceptable to those who are affected by such decisions. The contributions of colleagues should not be ignored since these individuals may perceive needs that have been overlooked. By seeking input from a variety of relevant sources before preparing program goals and objectives, project coordinators help ensure that their program's expected outcomes truly reflect the needs of their service area and user groups. Specific program goals and objectives allows a clear description of how the project will be executed and serve as "blueprints" for action which will help in implementing the programs and activities that will make the project a success.

The goals and objectives of the Northwestern Pennsylvania Cooperative Demonstration Project follow:

PROJECT OBJECTIVES, GOALS AND METHODS FOR ACHIEVING THEM - 1989

for

A Cooperative Demonstration Project for Manufacturing Employees in Northwestern PA

| Program Purpose/Goal | Objective | Methods for Achieving |
|---|---|---|
| 1. To insure an organizational structure that is responsive to the needs of business and industry, and the training needs of adults in the six county area of northwestern Pennsylvania | 1. Develop an outreach program that delivers services through existing facilities in industry, secondary education and in higher education institutions | 1. Establish an advisory committee and an administrative office that plans and coordinates the program. This will be accomplished by the project co-directors and the coordinator. |
| | 2. Identify and catalog existing resources and facilities for training and for demonstration sites | 2. Design/administer a survey then compile and industrial-education capacity register. This will be done by the project coordinator |
| | 3. Establish a six-county network for information dissemination | 3. Install Zenith and IBM computers at IUP and in the 6 AVTS sites. Then, connect participating companies via the electronic mail system. This will be carried out by the coordinator & the computer analyst/programmer |
| | 4. Focus on educational programs developing high-tech skills in new and emerging technologies | 4. Link industry with educational facilities to implement training to adults This will be done by the program |

| | | |
|---|---|---|
| | | coordinator work-with the AVTS in the six county area. |
| Program Purpose/Goal | Objective | Methods for Achieving |
| 2. Develop educational programs and training programs that meet the needs of adult learners, business and industry and the future labor market. | 1. Provide skill updating workshops for employees of area business and industry and unemployed adults in the six-county area. | 1. Perform an inventory of skill development. This will be done by the program coordinator |
| | 2. Promote educational and training programs via newsletters, brochures, public forums, etc. in the six-county area | 2. The writer, artist, video specialist will work with the program coordinator to design and generate this public relations information |
| | 3. Identify and hire teachers competent to teach in the high tech areas of CAD/CAM, CIM, Robotics, Electronics, CNC and automated manufacturing | 3. The program coordinator will work with private postsecondary schools, the AVTS network and higher ed. institutions to locate and hire appropriate instructors. When necessary, private industry personnel will be hired as well. |
| | 4. Supply instructors with appropriate teaching tools and materials for class preparation and delivery. | 4. The program coordinator will work with instructors to select and purchase all the required books and supplies and support materials for teaching adult students. |
| | 5. Identify private-sector consultants | 5. The program coordinator will work with teachers and other industrial/education personnel such as the |

| | | |
|---|---|---|
| | | coop coordinators of the county AVTS to locate expert consultants for additional educational expertise with high-tech equipment and processes. |

| Program Purpose/Goal | Objective | Methods for Achieving |
|---|---|---|
| 1. Share the program model with other interested individuals and groups in the commonwealth and the nation. | 1. Develop promotional and marketing materials along with progress and final reports. | 1. The program coordinator will work with the video, graphics and writing specialist to produce newsletters, videotapes and other materials for dissemination. |
| | 2. Evaluate the progress and outcomes of the cooperative demonstration program. | 2. An evaluation subcommittee will be appinted by the advisory committee to implement a variety of evaluation instruments and compile results for the final report |

## 19. WRITING THE FINAL REPORT

All funding agencies require a final performance report of a project's programs and activities. The report provides the agency with a summary of the events which transpired during the grant period and is usually accompanied by a financial report of expenditures incurred for program operation.

Performance reports must conform to any instructions that have been issued by the granting agency; their content typically includes a brief presentation of the following three items for each program, function, or activity:

- o A comparison of actual accomplishments to the goals and objectives that were established for the period. When results of project activities can be readily expressed in numbers, a spreadsheet that shows computations of the cost per unit of output may be useful.

- o Reasons for inability of project managers to meet established goals and objectives

- o An analysis and explanation of unexpectedly high overall or unit costs.

Often, there is no prescribed format for preparing and submitting a final performance report as long as the writer meets the instructions that have been issued by the funding agency. However, writers should always include the following information, however, in the first few pages of the final report document:

- o the project identification number
- o the program under which the project was funded,
- o the name of the funding agency,
- o the month and year that the report was prepared and submitted to the funding agency
- o the project title

Writers of the final report may wish to include additional items as appendices to the report. These may include evaluation reports, instruments, handbooks, guides, instructional materials, videotapes, and other nonprint materials.

The funding agency will provide guidelines which tell writers about duplicating requirements, number of copies of reports, how to submit nonprint media and so on.